MODERN TRANSPORT

"THE TIMES" OF THE TRANSPORT WORLD

BUS OPERATION IN THE SOUTH MIDLANDS

See Page 13

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CURRENT TOPICS

Planning and Transport

IN his statesmanlike paper to the Royal Society of Arts Mr. Alexander Samuels suggested that up till now planning control has failed as far as transport is concerned. It had not been a failure of intention but of execution. "What is needed," he said, "is a recognition of the fact that transport is an essential and fundamental part of planning. Transport cannot be laid on like gas. New development should be planned round a transport system, whether existing or projected, designed to run economically. It is necessary on social grounds that there should be satisfactory and efficient public transport. But this cannot be provided if the planning is done in a vacuum and the transport scheme left to last. As an example, there is some spare capacity on the suburban railway lines north of the Thames, but on the Southern Region, which already takes three-quarters of the commuter load, little further expansion of services is possible within the existing framework of line and equipment. Housing development is, however, still continuing in these areas, but that means that there is no prospect of an adequate service unless there is a decision to duplicate lines and go in for other large-scale capital expenditure which would be on a vast scale, and without any hope of an adequate return. To take another example, transport can only be economic if peaks are avoided and if reasonable balance is maintained between traffic travelling in both directions. Balanced development along the lengths of the railway main lines might well secure this. It would also help enormously if office development was concentrated near the main line railway termini (for example, Euston, Kings Cross, Victoria) and kept away from the central area (for example, Mayfair) where the traveller depends on overcrowded buses and tubes. Part of the centre should be kept for shops, places of entertainment and residences. There can be no point in allowing more and more office building in the centre, when there is no real hope of ever providing adequate transport to cater for its needs."

Averting Disaster

FURTHERMORE, Mr. Samuels went on to castigate the provision of a development project at Roehampton where all the dwellers have to struggle on to buses or use private forms of road transport. The green belts also provided some problems. To plan future development on the basis of transport facilities obviously meant breaking some of the theoretical rules, but it would be better if development were concentrated on where there was transport. Radial transport and green belts could hardly work together in harmony, he suggested, but there must be some way of solving the problem and holding back the rate of growth of office populations in Central London. He concluded that the victory of the motor car over man would be a social disaster which realistic planning could avert. The full solution to our problems depended on adequate knowledge and upon power with responsibility. That was why the administrative control of London traffic had to be tackled first.

Scammell Expansion

NEARING completion at the Watford and Moor Park works of Scammell Lorries, Limited, is the first stage of a large-scale reorganisation and production development scheme which has been planned to make fuller use of existing overall factory area and labour force to raise production to meet the rising demand for Scammell vehicles and trailers. Within the past few months £120,000 has been spent on the scheme, which has so far involved the installation of new plant, extensions totalling 70,000 sq. ft. and re-siting parking areas to make room for new building. An indication of the rising demand is the fact that current orders in hand stand at 150 per cent above those at the financial year end of 1959 and three times higher than at the comparable date in 1958. The overseas demand has shown a marked increase since the Scammell company came within the orbit of the Leyland Group and gained the advantage of the group's export sales network. Gains have been made in all types of Scammell equipment, from the mechanical horse and other tractors and matched articulated trailers up to the largest multi-wheeled specialised vehicles for oilfield and construction work. Scammell has held a unique place in road transport since well before the days of mechanisation, specialising in design and production of vehicles to suit individual customers' requirements. Many of the company's designs have been so exceptionally good that they have passed into standard practice. An outstanding example is perhaps the automatic coupling gear for articulated vehicles; originally developed in 1932 to permit speedy handling of trailers by the mechanical horse, it has gradually been developed to meet the requirements of the heavier classes of vehicle. As well as equipping Scammell articulated vehicles, which are themselves unique in being the only British vehicles of the type designed as matched tractor-trailer outfits, the automatic coupling has been adopted as standard by many other tractor and trailer manufacturers and to date no fewer than 125,000 have been sold. Having contributed so much to the efficiency and safety of articulated vehicles, the company has the right to be gratified at its increasing share in a market it created.

LEADING FEATURES IN THIS ISSUE

P.S.V. Operations in 1959

SUCH losses of traffic as the road passenger industry is suffering are marginal in relation to the total carryings and nothing is being surrendered without a fight. The bus and coach are still a vital force, and in good shape to recover ground, especially in urban areas. That is the impression left from a study of the annual Ministry of Transport *Public Road Passenger Transport Statistics* (H.M.S.O., price 1s. 6d.) covering the year 1959. In some respects there was an improvement on the previous year but comparison of the minor swings is vitiated by the fine summer of 1959 and the London bus strike of 1958. The total number of buses and coaches owned at the end of 1959 was a mere one hundred up at 73,559. The double-decker increased in numbers, by some 375 to 37,376, at the expense of the single-decker, down by 275 to 36,183. Over 400 trams and 500 trolleybuses were wiped out; the mystery of their replacement probably lies partly in unlicensed buses being put back on the road. As yet the statistics do not distinguish the 64- to 74-seat types of bus from their smaller brethren but it is noted that the number of buses with more than 56 seats rose by 1,800 to 12,486, while the number of 49- to 56-seaters declined by 1,400 to 18,294. There were 1,900 more single-deckers in the popular 41- to 48-seat class. As already indicated, passenger journeys improved slightly on 1958, the increase, such as it was, being confined to stage and contract operations. Express services and excursions and tours held their own.

Can Inland Waterways Pay?

LETTERS from two protagonists of the virtues of inland waterways in our December 3 issue show unquenchable faith in the virtues of inland waterways. We are taken to task for doubting if they will ever be made to pay. The inference that if waterways were removed from the grasp of the British Transport Commission they would immediately reach smooth financial water is sheer cloud-cuckoo-land stuff. Inland navigation suffers from the high present-day labour costs which deter transhipment and often makes it worth while to keep goods in lorries once they have to make any sort of road journey. A further handicap to the narrow-boat canals is that owing to slow transits and the small capacity of motor boat and butty two men on a lorry can generate far more ton-miles than the same two men working a pair of 7-ft. boats. This was set out very clearly in an Institute of Transport contribution by Mr. W. Fraser, not a member of the B.T.C. hierarchy but an officer of the Trent Navigation, who turned his attention to road haulage. If an outside view is required it is provided in the Bowes Report, which suggests that it would be impossible to cover all operating expenses, let alone meet interest on assets. The decline of the class B canals may be arrested but there are no prospects of their becoming financially viable; the Bowes Committee, in fact, recommended a subsidy as an alternative. The fact that the canals lose considerable sums each year is not because of wilful neglect but because in the motor era traffic suitable—in the eyes of traders—for canals is sparse and costs are high.

Anti-Corrosive Paint for Ships

IN a paper by Mr. P. J. Gay, technical director, Hangers Paints, Limited, which has been issued by the Royal Institution of Naval Architects for written discussion, the mechanism of corrosion of steel in saline water is discussed and methods of protection are described. For best results under water, says the author, paint media resistant to hydrolysis and having minimum permeability to water are necessary. Bitumen and rubber, certain vinyl resins and epoxide resins are satisfactory in these respects, but in many cases there are drawbacks in respect of toughness, adhesion and so on. Films which swell markedly on prolonged immersion become less resistant to mechanical damage. Films which do not swell on immersion in water retain their hard tough nature and tend to keep down skin friction between water and rapidly moving surfaces. Recent developments in cold cured epoxide resin-based paints allow these materials to be used in all normal shipyard conditions in Great Britain, giving adherent tough coatings on ships' bottoms, which show improved performance over traditional paints. Initial costs are rather high, but there is evidence that this may be more than regained by longer periods between dockings for painting, reduced docking time because of easier repainting and increased operational efficiency. Prolonged tests on long-distance fishing vessels and shorter trials on merchant and naval vessels have culminated in these systems being used on the liners *Oriana* and *Canberra*.

An Outside Opinion

LAST week's debate on transport in the House of Lords (the subject of comment on page 2 of this issue) showed at least one member of the Upper House to have noted the views on our railways expressed by Mr. Harry F. Brown, an American consultant, in an interview with *The Times* and elsewhere; Lord Citrine quoted him at some length. Mr. Brown, whose statistical studies of U.S. diesel traction were outlined last week, praised the British achievement of higher horsepowers per diesel unit than are common in America and particularly the *Deltic*, with its 30 h.p. per ton of tare. He saw some virtue in our having experimented with various diesel types as compared with somewhat rigid standardisation in the U.S. and was attracted (he stressed this particularly to MODERN TRANSPORT before he returned home) by the modern steam locomotives he had seen here. Our electrification schemes won special praise and he was emphatic that we ought not to relinquish electric traction on dense traffic routes simply because of the high initial cost. The New York, New Haven and Hartford Railway had been recommended to return to electric traction after forsaking it for dieselisation. The London Midland Region had overcome the most difficult task in tackling the Manchester terminus and the junctions at Crewe. The British Transport Commission had chosen its electrical system well; it ensured a light overhead structure. Useful features included the push-button anti-slip device. As to our suburban services, far from deserving public odium, he said: "I think they are excellent compared with what we have in the United States."

Another New York Heliport

THE Port of New York Authority Downtown Heliport on the East River and South Street, adjacent to the lower Manhattan business and financial area, Manhattan's second commercial heliport, was placed in operation on December 8. New York Airways, which also operates the Port Authority West 30th Street Heliport, opened four years ago, provides 22 flights daily at the new facility with seven-minute flights to and from LaGuardia and Newark Airports, and 20-minute flights to and from New York International Airport. The new heliport was constructed by the Port Authority at a cost of $230,000 on Pier 6, leased from the Department of Marine and Aviation of the City of New York. It includes an 80 by 85 ft. landing and take-off area, a 300 by 85 ft. helicopter parking and loading area, a single-storey terminal building, and a car-parking area. Mr. S. Sloan Colt, chairman of the authority, presided at brief ceremonies at the new heliport. The other participants were Messrs. James N. Juliana, executive director, Civil Aeronautics Board, John Butt, president of the Downtown-Lower Manhattan Association, and Robert L. Cummings, Jr., president of New York Airways. There were seven helicopters on display, including the new 25-passenger Vertol 107 helicopter scheduled for service.

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Transport in the Lords

LORD MORRISON, one of the ablest and most statesmanlike Ministers of Transport during the inter-war period, is not satisfied with the present conduct of that department. "Things ain't what they used to be when I was Minister of Transport," he said in the Upper House last week. "Thank the Lord for that," feelingly replied Lord Chesham, the present Parliamentary Secretary to the Ministry. Lord Morrison was opening a debate on present and future problems of transport which in range and virility more than equalled that on the same subject in the Lower House six weeks ago. Accusing the Minister of bias against the railways, he asked whether Mr. Marples regarded himself as Minister of Transport or as Minister of Road Transport; he (the speaker) would take a lot of persuading that the present Minister was worthy of the post. Stating that he was chairman of the Road and Rail Association, Lord Stonham went so far as to suggest that railwaymen thought that the Minister, actuated by doctrinaire prejudice, was determined to destroy their industry. The railway staffs "saw their efforts constantly denigrated and misrepresented, and their plans frustrated, cut or cancelled by the very Ministers they think should support them," he said. He sympathised with the civil servants in the Ministry of Transport who had "been working on a desperate and almost impossible task to produce a White Paper which will conceal the complete contradiction between the Government's private enterprise prejudices and the stark facts of the transport situation." His lordship—and others during the debate—reiterated the need, echoed last week by the president of the Institute of Transport, who is a member of the B.T.C., for the modernisation plan to be allowed to proceed on a five years' basis and not be subject to the varying effects of annual reappraisal.

Mr. Marples's Methods

A COMPARISON between the silence imposed upon a public corporation and the freedom enjoyed by private enterprise in matters of reorganisation or reconstruction was made by Lord Morrison. The B.T.C., he said, had to submit without public protest to a process of hiving off (as witness road haulage) in circumstances where private undertakings were free to have a first-class row with the Government; all the Commission could do was to put a gentle word in its annual report months later. The Government, "wobbling about on railway policy," had deliberately promoted destructive competition in the transport industry while allowing private undertakings to amalgamate. He accused the Government of "playing the fool" with the modernisation plan when they told the Commission not to enter into further contracts to complete the London Midland electrification. No contracts had been cancelled, replied Lord Chesham; there had been no more than a pause for examination and no major change in modernisation policy; the Commission had agreed that there should be some slowing down while inquiry was taking place. Without intending to anticipate the White Paper, which the Government hoped to issue before Christmas, Lord Chesham said its proposals would be directed towards the creation of good relations between the industry and the Minister; it would show that Lord Morrison was mistaken in thinking that the Minister was antipathetic towards the railways. Mr. Marples was actuated by common sense and realism in an effort to enable the railways to achieve efficiency and a sound financial basis, he said. All this, of course, we have heard before; the objects may be good, but it is the peculiar course followed in their pursuit that is objectionable. No doubt, however, there is some truth in Lord Chesham's argument that in trying to be fair to all forms of transport the Minister was inviting brickbats.

Dangers of Postponement

IN a trenchant contribution to the debate Lord Citrine, speaking with authority as former chairman of the British Electricity Authority, spoke of the dangers to the railways, the manufacturers, and indeed the community in general, of abandoning or even postponing electrification. Not only would it mean the disengagement of technical staff but it would affect our prospects in the export markets. "It will be equivalent," he said, "to telling the world that the British Government has no confidence in main-line electrification; and one can realise what a handicap that will be in the sphere of securing orders from other countries, including the British Commonwealth." Main-line electrification was bound to come: the longer it was deferred the more it would cost, and it was a pity we had ignored the recommendations of the Weir report way back in 1931. Lord Latham, one-time chairman of the London Transport Executive, shrewdly twitted the Government on its vacillating attitude towards rail modernisation, quoting chapter and verse from the White Papers of 1956 and 1958. As an instance of ad hoc charges restrictions exercised over the B.T.C. he mentioned the Government intervention of 1952 which had cost the L.T.E. nearly £2 million annually over four years. And as evidence of the drastic change in Government policy he quoted from a letter from Lord Leathers, Minister of War Transport, which he said had been published at the latter's request in MODERN TRANSPORT of March 18, 1944:

> "Time and war have shown how necessary it is to regard the various means of transport not as a collection of independent and competing units but as component parts of a vital national service."

It was ironic, said Lord Latham, to reflect that Lord Leathers was concerned as an "Overlord" with others in 1953 in tearing apart this "vital national service" when there had been no evidence of the failure of integration.

Analogy With Roads

HE concluded with a plea for provision of the Victoria Line on the basis of a Government grant of 75 per cent (not 100 per cent as for trunk roads) towards the capital cost of the tube and stations, and not necessarily of the rolling stock. An analogy with the roads had been made also by Lord Morrison who suggested that as an alternative to a general subsidy main-line permanent way might be treated as Class I or Class II roads and branch lines as Class II or III, coupled with the possibility of taxing the railways on the fuel oil used in their diesels. Lord Hawke thought that the railway attitude had been far too apologetic; instead of apologising to the public for inferior service during modernisation they should say: "It is a miracle you have a service at all, considering the type of engineering works we have to carry out on this line." He stressed the essential need for reliability, rather than speed, in freight services. Replying to the debate, Viscount Hailsham, Lord President of the Council, asserted that financial realism had forced the Government to act. Policy, which would be announced very shortly, would be based on practical considerations and not upon dogma. "We will handle the question of the finance and the financial structure which burdens the railways," he said, "and we will free the railways, I expect, from a good many of the restrictions that have been referred to, although it would be quite improper for me to enter into any detail." He added that there were areas of the country where railways were not capable of supporting a system paid for entirely by users. Berkeley Square House—on the point of being vacated for a Southwark venue—must indeed be throbbing with activity if it is to produce the White Paper before Christmas.

NEWS SUMMARY

THIS year's Institute of Transport Henry Spurrier Memorial Lecture was by Mr. J. M. A. Smith, director of Ford Motor Co., Limited, and deputy president of the Society of Motor Manufacturers and Traders. His subject was "The Impact of the Motor Car upon Public Transport"; the lecture is summarised on page 5.

The Chrysler Corporation has denied any intention of the group to bid for Standard-Triumph-International against Leyland Motors.

On December 11 a Great Eastern Railway T26 class 2-4-0 express engine was taken by road from Stratford works, where it had been restored to its original royal blue livery, to the Clapham museum of the British Transport Commission, where it will be put on view in due course.

Eastern Region Enfield and Chingford peak hour services were slightly reduced from December 12 pending adjustments to the electrical equipment of the stock by the contractor.

The London Transport Dramatic Club last week presented "Epitaph for George Dillon" by John Osborne and Anthony Creighton at the theatre of L'Institut Français and won praise from the audience.

RESEARCH LABORATORIES

For London Transport

IMPROVED SCIENTIFIC FACILITIES

OFFICIALLY inaugurated by the chairman, Mr. A. B. B. Valentine, on December 5, the new London Transport research laboratory at Chiswick has enabled the scientific staff of the research department to be brought together under one roof for the first time; it will be the centre for the scientific control and investigation of materials and equipment used throughout London Transport Executive road and rail services. It gives space for new facilities and equipment as well as additional staff. These facilities include a cold chamber for low-temperature testing of materials and such units as brake systems, a specially-designed screened room for radiographic work, heat-treatment furnaces and welding equipment, a pilot plant laboratory, special recording equipment for strain gauge tests and a fatigue testing machine for railway axles.

General view of the new London Transport research laboratory building at Chiswick

London Transport spends more than £15 million a year on stores and materials and an important part of the work of the small but highly-specialised research department is to carry out regular routine investigations of these supplies. It is responsible for the technical control of certain works processes. As its name implies, it primarily carries out special research work. Some of this has been of great and lasting value.

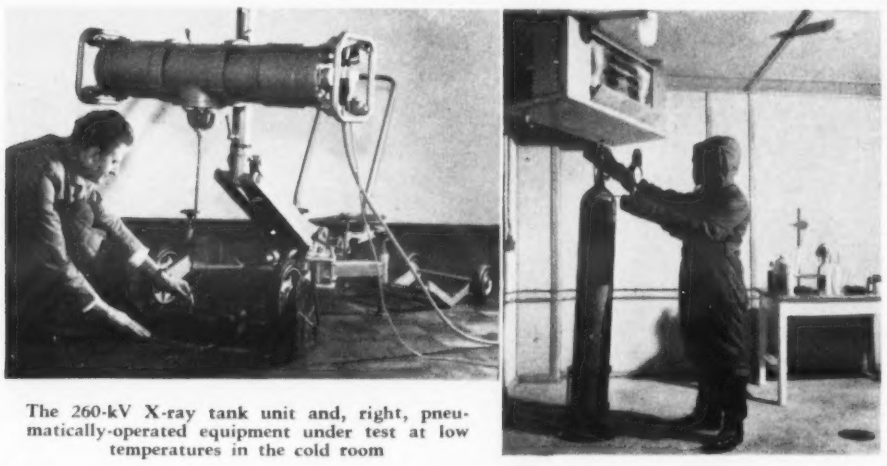
Savings

Among the consequences of these investigations in the last few years are a saving of £300,000 a year in diesel fuel for buses arising from experiments in the use of a thinner grade of lubricating oil, a further saving of £80,000 a year from improved types of rear axle oil for buses, and £5,000 a year saved by work which has led to the doubling of the life of bus batteries. Paint investigations have made it possible to lengthen the repainting period for buses to once in four years, enabling the number of spare buses to be reduced and painting costs decreased.

There has been a laboratory at Chiswick Works since 1921, when the London General Omnibus Company's equipment was transferred from the original premises at Farm Lane, where it had been established in the previous year. In the newly-opened central overhaul works the scope of the laboratory was originally limited, in the main, to chemistry. Improved accommodation was made available in 1931, but this soon became inadequate as demands on the services grew in volume and range. Even under the London Passenger Transport Board the laboratory remained under the control of the chief mechanical engineer (road services), although other departments made increasing use of the facilities it offered.

A Common Service

At the end of 1948, the enlarged scope of the laboratory's activities was recognised by the L.T.E., when it was made a common service dealing direct with all departments. The full development of the laboratory's services has, however, been hindered by the lack of adequate accommodation.



The 260-kV X-ray tank unit and, right, pneumatically-operated equipment under test at low temperatures in the cold room

Before the new building was occupied, the laboratory was housed in portions of four scattered buildings and three temporary huts on the Chiswick Works estate. This lack of space hampered the proper conduct of existing activities and prevented highly desirable long-term scientific work, especially on engineering problems, from being undertaken.

The new laboratory, with an adjacent single-storey annexe, will accommodate a staff of about 80, of all grades. This represents the whole of the staff under the control of the superintendent of laboratories except for those employed in small laboratories attached to each of London Transport's three electricity generating stations and one individual who is permanently attached to Aldenham Works.

Layout

In general, metallurgy, physics and engineering are dealt with on the ground floor of the new building and the chemical sections and general administration are on the first floor. Thus, the laboratory for the mechanical testing of lubricants, the machine shop, engineering laboratories, cold chamber, radiography room, battery-testing laboratories and laboratory for mechanical testing of metals are situated on the ground floor. On this floor, also, are the metal-chemistry laboratory and rooms for microscopy, non-destructive testing,

(Continued on page 11)

Spectrophotometer for colorimetric determination of metals; electrometric titration apparatus with equipment for determination of ozone traces in the atmosphere; below, resonant fatigue test for imparting rotating bending stresses such as are encountered in service to axle steel; and, right, roof exposure station for paint specimens

LORRY—BUS—COACH

No Extra Weight for 36-Ft. Buses

PROPOSALS have now been circulated by the Minister of Transport among interested parties for the increase in box dimensions of public service vehicles to 36 ft. by 8 ft. 2½ in. He has decided, however, that there shall be no change in the turning circle regulations, nor in the maximum weights of buses. The Traffic Commissioners would have power to limit the routes on which buses of the larger size might be used but the Minister points out that vehicles of the larger size would replace existing vehicles only comparatively slowly. Views on the proposals should be submitted by January 31, 1961. Proposals which would increase permissible overhang were circulated last August. Maintenance of the existing gross weight limit of 14 tons may mean that a 36 ft. double-decker would only be possible if tare weight was reduced to the minimum. A typical 30-ft. long 74-seat bus weighs in excess of 13 tons fully laden.

Roadside Flares

ALL delivery trucks operated by Caltex throughout Australia will be equipped with emergency road flares. At present the flares are required by law in certain states only, but realising the benefits of the flares, Caltex is extending their use to all states. The emergency road flares warn approaching traffic in the event of an accident or roadside breakdown.

Municipal Bus Claim

REPRESENTATIVES of the municipal bus employers have not rejected the recent wages and conditions claim entered in respect of road staff, and semi-skilled and unskilled craftsmen in garages, as was the case with the provincial company employers, but have agreed to refer the claim to a joint wages committee, due to meet on January 12 next.

Insulated Vehicle Data

THE U.S. Department of Agriculture has issued a report describing a new method of measuring the rate at which heat passes through an insulated vehicle body carrying perishable foods. If an operator knows the heat transfer rate of his trailer, he can select the correct type of cooling equipment and thus insure adequate protection of the foods. A copy of *Marketing Research Report No.* 433 can be obtained gratis from the Office of Information, U.S. Department of Agriculture, Washington 25, D.C.

Black Smoke a Nuisance

THE extent of the danger and menace from diesel fumes has been grossly exaggerated—for what reasons it is only possible to guess. Of course, it would be going too far in the opposite direction if we were to deny that the nuisance exists. Mr. J. B. Mitchell, chairman of the R.H.A., expressed these sentiments at Torquay last week. Black smoke was a nuisance, not a danger to health. This had been demonstrated, by no less a body than the Medical Research Council, to the satisfaction of the government departments concerned. Operators were not complacent nor would they slacken their determination to bring the nuisance to an end. The R.H.A. had been grappling with the problem for a long time. "We are examining filters, additives, testers and other devices, many of them on the market, and it may well be that they can all play some part in mitigating the trouble," said Mr. Mitchell. They would resist prosecutions "pursued out of mere prejudice."

Wages of L.T.E. Inspectors

ROAD services inspectors of London Transport are dissatisfied with wage offers made in response to their claims, which aim at improving their rates vis-à-vis those of road crews. At present some inspectors may get less than a bus driver. Typical union demands have been for loading inspectors to get £90 a year more to reach a salary of £660; for depot assistants to get £97 10s. more to reach £730; for road inspectors to get £110 more to reach £850. In each case London Transport is stated to have offered about £30 less a year, dated from October 20.

One of the Maidstone and District Nimbus fleet (see paragraph); right, a Guy Trambus, the Victory chassis with vertical front-positioned Gardner 6LX engine. The bus takes 80 passengers, 20 of them standing, and is for service in Rossburgh in South Africa

Renfrewshire Takeover

A SCOTTISH investment company, Grampian Holdings, Limited, has acquired the business of W. H. Malcolm, Limited, road transport and haulage contractors operating in Renfrewshire. The price was £216,000, made up as to £189,000 in cash and 23,685 ordinary shares of 5s. each in Grampian. W. H. Malcolm engages in transport and works contracting. Profits have risen steadily over the past 10 years to £68,010 in 1960.

M. and D. Nimbus Fleet

FIFTEEN 30-seat Albion Nimbus one-man buses are to be introduced by Maidstone and District Motor Services, Limited, during the next few weeks on various routes where higher capacity vehicles are not necessary for the traffic carried. The first eight of them have already been delivered. The vehicles have Harrington bodies. The largest allocation will be to the Tunbridge Wells and Tonbridge area, where the new buses will be used on seven services. Others have been allocated for services operated from Hastings, Rye, Gillingham, Sittingbourne and Borough Green depots. Parcel racks are available inside for hand baggage, and a large luggage locker is situated at the rear.

Southampton Transport Rehoused

OFFICES of Southampton Corporation Transport Department are now housed in a new three-storey building in Portswood Road. Alderman F. S. Smith, chairman of the Transport Committee, opened the building. This marks the end of a 20-year period of restricted temporary accommodation for the administrative staff. The prewar offices in Above Bar were destroyed by enemy action in 1940. The staff had to work in air-raid shelters for a short time, then two old houses in Portswood Road were requisitioned for administrative offices. These have now been demolished, and the new building erected on ground to the rear of their sites.

New Index System Put Off

INTRODUCTION of a new four-letter-plus-three-digit vehicle indexing system for the United Kingdom, which was earlier expected for January 1, 1961, has now been postponed, probably for 12 months or more. One of the difficulties in the way of earlier introduction has been the car or van body with a recess for the rear number plate. In some cases this is not large enough to accept the new plate. The risk of exhausting existing registration numbers has been staved off by allocating an unused three-letter series, CBF, DBF, etc., to Staffordshire County Council, which had threatened to be the first to run out of index numbers.

Traffic Commissioners' Panels

CHESTERFIELD and Bury councils have expressed some concern at a proposal by the Ministry of Transport that a chairman or member of a municipal passenger transport committee should not, because of a possible conflict of interest, be nominated to the panels of traffic commissioners or their deputies. Chesterfield feels that nominees from local authorities for appointment as traffic commissioners and deputies will, in most instances, be persons who have shown an interest in the past in passenger transport activities, and suggests that the best method of dealing with this problem is still to allow the local authorities to nominate such members as in their view will be capable of dealing with traffic problems but to leave it to the chairman of the traffic commissioners to ensure that no local authority representative is allocated to a panel dealing with a case on which he would find himself with an interest, direct or indirect, in the case under consideration. Bury is perturbed at the implication that membership of a local authority's transport committee might be regarded as a bar to appointment as a traffic commissioner or a deputy. The Association of Municipal Corporations has asked the Ministry of Transport the reason for its change of attitude.

Container or Trailer

USE of containers in road-rail or road-sea movements in the United States is increasing, but the need for standardisation of dimensions has become increasingly apparent, especially in shipping applications. Highway Trailer Industries, Inc., has attempted to overcome this with its Multi-Van container system. The Multi-Van is a 20-ft. long container with detachable road axle(s) and a kingpin enabling it to be hauled as a semi-trailer. Two 20-ft. vans can be physically locked end to end to function as a 40-ft. semi-trailer, the intermediate wheels being removed. Highway Industries is offering the system to other U.S. manufacturers on a royalty-free basis.

News of Truksea Service

FROM January 1 next, Eurofreight, Limited, operator of Truksea and Trukair express services to and from the Continent, will extend its existing network to include traffic from the United Kingdom to Austria. Trukair and Truksea services already established to Holland, Belgium and Germany have seen a substantial increase in the volume of traffic since their inception. It is the aim ultimately to integrate all European express transport systems so that British exporters may be provided with fast delivery facilities for small consignments at comparatively reasonable freight rates, using road carriers in conjunction with airlines or shipping lines.

Bus and Coach Developments

Messrs. C. A. Baldry has requested permission to run express services between Bletchley and Buckingham.

Associated Motorways has requested permission to operate an express service between Cardiff and Blackpool, and between Cheltenham and Pembroke Dock.

Crain's Garage, Limited, of St. Albans, has applied for permission to run express services between Luton and Welwyn Garden City.

In addition to the announcement last week that the North Western Road Car Co., Limited, has applied for permission to run express coach services to Scarborough, it is now known that Bridlington and Filey will also be served. There will be two services, one from Manchester, and the other from Northwich, Knutsford, Altrincham, Sale and Stretford and they will operate on summer Saturdays only.

United Dominions Trust, Limited, announces the opening of a new branch office in Cheltenham at 1 Imperial Square (telephone number Cheltenham 53426-7) and another in Swindon at Woolwich House, 39 Commercial Road (telephone number Swindon 3433-4).

The British Aluminium Co., Limited, has opened its Bedford district sales office at Swan House, 3 High Street, Bedford (telephone Bedford 5428). The new office covers the counties of Northamptonshire, Huntingdonshire, Bedfordshire, Cambridgeshire, Norfolk and Suffolk.

THE MOTOR CAR AND PUBLIC TRANSPORT

Conditions for Co-Existence

*By J. M. A. SMITH, Director, Ford Motor Co., Limited**

WE all spend a sizeable part of our lives in travel, and we are constantly making decisions in respect of the alternative means of travel which are available to us. Each of us is conscious from his own personal experience of the infinite variety of considerations which determine whether a journey is to be undertaken, or if a letter or telephone call will do, and if it is to be a journey, what is to be the means of conveyance, route and timing. It is not surprising therefore that there are few subjects so controversial and upon which there are so many finely-balanced solutions as the travel problems of today. I propose first to look at the impact which private vehicles have already had upon public transport in this country; then to examine the reasons for the changes which have taken place; and finally to hazard some opinions as to the course of future developments.

The complete picture of the development of inland travel in this country in the past decade is

TABLE I
INLAND TRAVEL IN THE UNITED KINGDOM
(1,000 million passenger-miles)

				Percentage change
Public transport	*1951*	*1959*		*1951-1959*
Rail				
London	3·7	3·2		− 15
Other	20·6	22·3		+ 8
	24·3		25·5	+ 5
Road				
London	8·7	6·3		− 28
Other	42·6	39·6		− 8
	51·3		45·9	− 12
Air	·1		·3	+200
Total public transport	75·7		71·1	− 6
Total personal transport	33·3		67·4	+102
	109·0		138·5	+ 27

shown in Table I. It is perhaps easier to understand these astronomic figures if expressed in terms of miles travelled daily by each inhabitant in this country—in 1951 six miles and now eight miles.

Private Transport Doubled

Within the past decade all travel increased by 27 per cent. In 1951 public transport accounted for more than two-thirds, but only half today; private transport has more than doubled, while public transport has declined by 6 per cent. Rail travel accounts for only about one-third of public transport; overall, it has improved its position slightly, but road travel has declined significantly more. However, in the London Transport area both rail and road have declined, road travel the more seriously—by 28 per cent. Outside London, rail has done comparatively well in contrast to an 8 per cent decline in public road transport.

The growth of private travel reflects the fact that in the period cars, motor cycles and scooters in use have more than doubled (from 3.2 millions in 1951 to 6.7 millions last year, and over 7.0 millions today), while intensity of usage has remained approximately constant. However, this only takes us part of the way towards an understanding of the nature of the forms of travel and journeys undertaken. We need to know more about the usage of vehicles, length of journey, purpose, regularity, etc., in the various parts of the country. For London information is good, but elsewhere it is far from complete.

Table II (obtained from traffic counts) confirms the doubling of car travel and the falling off in public road transport. We see also the very sharp decline in pedal cycle traffic, a large part of this being lost to motor cycles and scooters. On average, each private car travels just over 8,000 miles per annum, or rather over 150 miles per week. This may seem high in relation to our personal experience, but we must remember that probably at least 40 per cent of private cars are used more or less intensively for business purposes. Public service vehicles are of course most intensively used, averaging 31,000 miles per annum.

Growth of Rail Commuter Traffic

Although many more people are travelling into London by private transport at morning peak hours, they still represent only one-tenth of those using public transport at that time. Public transport has in fact held its own, the loss in road services having been more than compensated by increased rail travel, both underground and surface. The latter is remarkable in view of the decline of 15 per cent overall in London rail travel (Table I), suggesting that the loss in non-peak rail travel must have been even greater. This may be explained, at least in part, by the fact that, after peak hour each weekday, over 150,000 people travel into London by car, and a further 50,000 each evening. In all, it seems that well over 300,000 people travel daily into London by private transport, and that this traffic may well have doubled in the past 10 years.

TABLE III
PRIVATE AND PUBLIC TRANSPORT IN WESTERN EUROPE

	Per cent of total passenger transport		*Total passenger transport (in 1,000 million passenger kilometres)*
	Private	*Public*	
Sweden	70	30	32·3
France	60	40	113·0
Western Germany	55	45	228·0
Italy	52	48	118·5
Belgium	49	51	28·5
United Kingdom	48	52	220·0
Norway	32	68	6·75

[Table shows that in Western Europe generally, the motor car has made a far greater impact upon public transport than as yet in the United Kingdom.]

Even if all this additional private travel has been at the expense of London public transport, it can only account for a small proportion of the 2,900 million passenger-miles public transport has lost (Table II). It can only be concluded that the balance of this loss of traffic must be attributed to other factors such as the 10 per cent loss of population in Central London in recent years; more stay at home because of television, etc. A recent London traffic survey tells us also that over 40 passengers per bus are carried during peak hours. This has obvious advantages in economy of road space, compared with about 25 cars to carry the same number (at the effective weekday average of about 1½ persons per car).

In provincial cities and large urban districts traffic conditions at the centre are not dissimilar to those in London. However, the congested area is less and the approach journey is generally easier. It is therefore probable that a higher proportion of car owners use their cars for city journeys. Even so, public transport probably continues to carry the bulk of traffic at peak hours. The pattern of car usage is probably not unlike that of London.

Rural Areas

In the country, with its greater dispersion of population, public transport services of necessity are less accessible and less frequent. Private cars with their greater flexibility have made faster inroads. For example, there is one car per seven inhabitants in Cornwall and Rutland compared with one in 18 in Liverpool, and a national average of one in 10. This is not inconsistent with a Ministry of Labour survey some years ago which stated that, on average, households in rural districts spent nearly twice as much on private transport as those in towns.

The Jack Committee, appointed to review the adequacy of rural bus services, will report shortly, but meantime from local surveys we hear that:

(1) Where railway branch lines and stations have been closed, only about half the former train passengers then used buses regularly, the remainder buying cars, arranging lifts or changing their place of work or travel habits.
(2) When bus services become infrequent more cars and bicycles are bought, and once people buy a car they use it for nearly all purposes.
(3) A small increase in the number of cars may lead to a disproportionate loss of bus traffic because car owners in the country always arrange lifts for friends.

From this miscellaneous data we can begin to piece together what has happened in the field of passenger travel:

(1) At weekday average of 1½ persons per car, over 8 million people could travel daily by car, and about 2½ million by motor cycle, or in all one-fifth of the nation.
(2) Only a proportion—probably less than half—elect to do so in the cities where public transport retains a strong hold for commuting, shopping and household travel. Substantial use is made of private cars for business purposes, and public transport has little part in this.
(3) In the country however private transport has made greater inroads, and is used intensively for all purposes throughout the week.
(4) At weekends and on holidays, when families are united, probably one-third of the nation can travel by private transport. This is mainly for pleasure and, although some of this represents loss to public transport, the greater part undoubtedly is additional pleasure travel made possible by car ownership.
(5) Passenger traffic by train between cities, mainly for business, has been well maintained.

Car ownership obviously has high priority for the spending of marginal incomes. Last year 5.6 per cent of total personal expenditure in this country was spent on private motoring, and only 3.3 per cent on public transport. In the U.S.A., the most motorised country of all, the rate of spending on private motoring was almost double that of this country. Once a family has a car, public transport seldom competes on cost alone; with the driver only the cost calculation may be marginal, but with one passenger or more it is predominantly in favour of car travel.

TABLE II
TRAFFIC FLOW TRENDS
(1951=100)

	1959
Motor cycles	173
Cars and taxis	213
Public service vehicles	98
Goods vehicles	142
Pedal cycles	66
All motor vehicles	179

Looking now into the future, we have first to consider how large the car population will be. The motor industry forecast is that by 1975 the number of cars in use will be 13.5 million; adding the 3 million motor cycles and scooters then estimated, we get 16.5 million private vehicles in all. Cars alone in those 15 years will have increased by nearly 2½ times. These estimates are based on an expectation that consumer expenditure on new cars will grow approximately four times as fast as general personal expenditures. It has also been assumed that purchase tax will decline before many years have passed, from the present 50 per cent to a more modest rate. I see no reason why the growth in demand for private transport should level off.

Effect on Traffic Congestion

But even if people want cars and are willing and able to pay for them, will not an increase of this scale worsen the traffic problem to the point that our city centres and approaches seize up altogether? Sir James Dunnett (Permanent Secretary, Ministry of Transport), giving this lecture last year, dealt most comprehensively with the government problem of roads and road transport. He judged that, for the whole field of transport policy, it would be necessary to come to terms with the motor car, and preserve the balance between public and private transport; not only would this be desirable in itself, but it would be essential to any reasonable solution of the social problem imposed by the impact of new transport patterns on our small crowded island. He called for a combined operation by planners, architects and engineers, as the pattern of roads might well determine the pattern of cities in the future. He concluded by saying that the problem of transport in its widest sense would have a fundamental effect on the type of civilisation which will exist in these islands in 20 to 30 years' time. This is indeed an imaginative and challenging viewpoint and one which is receiving growing recognition among all concerned with the planning of our cities.

Mr. C. T. Brunner (Shell-Mex and B.P., Limited) also has dealt in recent lectures with this problem. He has pointed out the causes of decay in city centres in the U.S.A., which are attributed to the motor vehicle, and how they can be avoided here. He considers that the ownership and use of motor vehicles, and especially cars, has created a crisis in the life of cities which demands a similar combined operation, and concludes ". . . we must give up negative and passive attitudes to our cities' growth, cease to be overawed by the past and look confidently to the future with its exciting opportunities."

U.S.A. Not Dissimilar

What have we to learn from America, which is passing through a similar ordeal? Their experience must be of the greatest value to us, although there is an unfortunate tendency to discount it on the grounds that our conditions are dissimilar—that theirs is a country of wide open spaces in contrast to our own tight little island. We must realise,

(*Continued on page 6*)

* Abstracts from Henry Spurrier memorial lecture presented to the Institute of Transport meeting on December 12.

LONDON FARES

Prospect of a Second Increase

SINCE the beginning of 1960 the London Transport wage bill has gone up by £6½ million per annum; extra National Insurance payments will call for an additional £700,000; on balance prices of materials are still rising; there is the vast rolling-stock and power plant replacement programme to be serviced: taken together all these demands call for an additional £7½-£8 million annually in revenue. This is the background to the announcement last week that London Transport has had to lodge a further application with the Transport Tribunal for authority to increase certain fares and also season ticket rates. This application is made under section 79 of the Transport Act, 1947, and not under the short procedure provided for in the 1953 Act. Hence it is not known when the new fares may be introduced. Only three weeks ago it was announced that London fares over two miles would go up on January 15, 1961.

Additional Yield

The two increases of fares, in May of this year and January next will together yield roundly £5¼ million a year; but that will not be sufficient to meet the whole of the increased wages and other costs, including interest charges, and in addition produce the necessary working surplus to which the Transport Tribunal has agreed. The new maximum charging powers for which authority is now being sought are to make subsequent increases (additional to those which are to come into operation on January 15), as follows: to increase by 1d. London Transport ordinary fares of 8d. (3 miles) and upwards, but retaining the 8d. fare for journeys between 2 and 2½ miles; and to increase London Transport season ticket charges by about 5 per cent. These further increases in maximum charging powers, when they are introduced, are expected to yield in a full year roundly £2 million per annum to London Transport. The ordinary fare scales (a) at present, (b) from January 15, 1961 and (c) envisaged in the latest application commence as follows:

					Miles			
	1	1½	2	2½	3	4	5	6 etc.
At present	3d.	5d.	6d.	7d.	7d.	9d.	11d.	1s. 1d.
From January, 1961	3d.	5d.	6d.	8d.	8d.	10d.	1s. 0d.	1s. 2d.
Later	3d.	5d.	6d.	8d.	9d.	11d.	1s. 1d.	1s. 3d.

The introduction in September, 1957, of a fare for journeys of 1-1½ miles is now to be followed by a fare for 2-2½ mile journeys.

Increases in wages and costs during 1960 have seriously affected the financial position of British Railways, and the British Transport Commission is also applying for powers to increase ordinary fares and season ticket rates on the London, Tilbury and Southend line, and day returns and season tickets on other British Railways London lines. This will maintain the correspondence between fares and season ticket rates on these lines and London Transport. For season ticket rates outside London there is no additional charging power available, and the Commission will be seeking power to obtain "headroom" on season ticket rates of 20 per cent above the existing authorised maxima. If approved, there will therefore be a similar headroom to that which already exists for ordinary fares.

Single Hearing by Tribunal?

The two increases in fares already approved (in respect of May and January), have still to be confirmed by the Tribunal, and it will be asked concurrently to approve the further addition to the maximum charging powers. It is not stated when the third stage, if approved, might be introduced but, in the words of Mr. A. B. B. Valentine, chairman of London Transport, "it might even be necessary to do so without much delay before the summer."

Mr. Valentine had something to say about the staffing position since the substantial wage settlement for busmen in October. Aided by a slightly easier employment situation in London, he said, the bus situation had also improved, and the volume of bus services operated on the roads had correspondingly improved. Instead of losing more men and women by resignation than they were gaining by recruitment, the situation was reversed, and since the end of October they had gained some 600 drivers and conductors on the Central road services. For the present, at any rate, there seemed to be no reason why this trend should not continue but a great many more men and women were wanted (about 3,300 for winter schedules) to drive and conduct buses. In terms of actual buses running on the roads, this improvement meant that a quarter of a million miles more a week are being run now by Central buses compared with the middle of October. The presence or absence of these buses could make a great deal of difference between a reliable service and one that was not. But congestion on the roads would still take away some of the benefit the passenger should be getting from the improved bus service.

Their view of the proposals now being made for an inquiry of some sort into the public transport services of London was quite simple. "We cannot see what an inquiry would tell anybody that is not already known," said Mr. Valentine. The Chambers Committee in its report in 1955 approved the methods adopted by London Transport in assessing the need for services—the balance between meeting public needs and covering costs—and the report agreed that the policies being applied in the matter of the level of service offered to the public were the right ones. There had been no change in London Transport policies since that time. What had happened, however, was that the acute staff shortage, coupled with traffic congestion, was preventing it from giving the public the services which it planned to run. The staff shortage affected London employers generally, and particularly employers with a lot of shift work like the police, Post Office and London Transport.

THE CAR AND PUBLIC TRANSPORT

(*Continued from page 5*)

however, that there are large areas of the U.S.A., particularly in the East, where road and town traffic densities are quite as great as anything experienced in this country. The extreme example is of course New York City, hemmed in on Manhattan Island, which probably has the most acute traffic problem of any city in the world.

Quite different conditions are experienced in the new cities of the West which have grown since the advent of the motor car. There public transport is practically non-existent, and the motor car is supreme. Unplanned development and wide dispersal makes difficult the fullness of city life as we know it. In the East, on the other hand, city centres have become progressively less accessible to vehicle traffic and as they are forsaken for new suburban shopping and community centres, several states and cities have been driven in desperation to subsidise their commuting railway services, in order to prevent a complete breakdown of communications. This indeed is a lesson to the extremists who would say that public transport has no part to play in a fully motorised country.

Negative Approach to Town Planning

One word of advice comes from an American authority who has recently declared: "Whilst one mourns the American city, one fears the fate of the European one. One senses a feeling of false security among British city planners as they shelter behind a Maginot Line of planning legislation and zoning provisions. There is too much defence and too little attack. . . ."

I believe that the keystone to the replanning of our city centres and to the securing of a proper balance between public and private transport will be to charge a true economic price for the various services rendered. Public transport fares should be based upon true cost and a fair return. Motorists should pay the economic price for their parking and garage accommodation on a full cost base related to land and construction values. They have of course paid for the roads many times over in excess taxation.

I visualise a car driver entering the London of the future having the choice of low-cost parking at railway stations in the outskirts; alternatively, of following an approach motorway until it joins the inner ring road where he will have another choice of garage at higher cost. If he insists on driving into the valuable central area, he will find garages there, but at higher cost still. Those motorists choosing the cheaper alternatives will travel by public transport to the city centre—by rail or underground from suburban stations, or by bus or underground in the central areas. I believe that by such means city centres will be accessible and so remain in full active life.

Some new towns are taking in both hands their wonderful opportunity of building cities for the car-owning citizens of the future—at Cumbernauld, near Glasgow, for example, and at Farsta, in Sweden, where wide pedestrian concourses will form the heart of the city, with traffic moving on different levels, and with adequate garaging close at hand.

Making Up for Lost Time

We must recognise the force and the pace of the tide which is flowing; that as a matter of high priority we should provide ourselves soon with safe and adequate roads; and that in all permanent constructional developments we should plan on the basis of universal car ownership, for this is not more than 20 years away. I am still of this view.

Is there any prospect of getting the necessary improved roads in time to relieve this deadlock? Will our Government and the British voter face up to the implications of the road programme necessary to ward off this menace? Above all, how—so ask the pessimists—are we to accommodate all these masses of cars in London, Glasgow, Exeter, Blackpool and such notorious traffic traps?

I can only say that the position is very much better than it was only a few years ago. In recent years it is clear that the Government has been alerted to the need for a greatly accelerated road programme. Nonetheless, I think that a greatly increase tempo of road construction at double or even treble the present scale of expenditure is necessary if we are to get on terms with the problem and make our road system an economic traffic link worthy of our nation. I am sure that public opinion is prepared to accept the priorities and expenditures involved.

The Future Before the Railways

Is there anything in the argument that the Government should ease the pressure on our overtaxed road system by diverting traffic to the railways which are now so obviously under-employed? There probably never was a more inappropriate time than the present to judge the relative responsibilities of rail and road transport. The railways have been the focus of public interest and debate. First we had their 1959 reappraisal plan for modernisation and equipment which concluded that the economic position of the fast main-line services between important centres was generally satisfactory, but that the stopping services on main lines and branch lines and the intensive services around London and other main cities presented a financial problem; that increased electric and diesel services on main lines and suburban areas would compensate for a substantial reduction of about one-fifth in the stopping train mileage, other than suburban; and that, after making full allowance for the growth in private cars and the effects of new motorways, it was anticipated that a greater volume of traffic would result from the improvements being made in the quality of passenger services, and in the greater reliability and cleanliness of diesel and electric traction.

We have also heard concern expressed by British Railways that its fares have not kept pace with other costs, the problem being particularly acute in the case of season tickets. The railways have been handicapped by the rigidity of fares related to mileage, and this may well have been one of the principal causes of loss of business to coach services and to private cars. It is clear that greater flexibility, realism and courage in determining rail fares is essential if railways are to be placed on an economic footing.

Economic Solution

It is safe, I think, to assume that commuting and long-distance main-line rail traffic, which have held their own so well, will continue to do so even better under the modernised system of the future. Some of the new diesel and electric services are already yeilding quite dramatic results. However, it seems that further closures of uneconomic lines and services are inevitable. Probably there is little pros-

(*Continued on page 12*)

ELECTRONIC SIGNAL INTERLOCKING

Believed the World's First

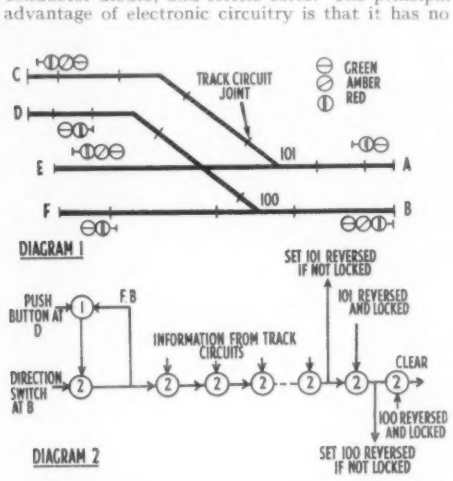
TO BE ON TRIAL ON B.R. AT HENLEY

AS set out briefly in our last issue, British Railways is to instal what is believed to be the first electronically-operated system of signal interlocking in the world in Henley-on-Thames signalbox. The new system has successfully completed its laboratory tests and will be applied to this Western Region branch terminus signalbox for full-scale trials. It is hoped that the new apparatus, which may lead to important savings in maintenance costs, will be working by the early summer of next year.

British signal engineers have been interested in the development of electronics for some time, and the new installation at Henley will be a further step in the application of these techniques to railway signalling. Electronics have already been applied to the remote control and indicating elements in some signalboxes. These elements have important operational functions in the signalling system but are only contributors to overall safety which ultimately depends upon efficient interlocking of the signals and points.

Comparisons

Until now interlocking has been effected either by mechanical locks or, in more modern installations, by electrically-operated magnetic relays. These will be replaced in the Henley installation by electronic circuits incorporating transistors, semiconductor diodes, and ferrite cores. The principal advantage of electronic circuitry is that it has no moving parts and could therefore lead to important savings in maintenance costs. Adoption of electronic interlocking for future signalling schemes will depend largely upon its ability to surpass the outstanding reliability of magnetic relays, which can operate for a minimum of five years in a sealed case and have a failure rate of only one in thousands of millions of operations.



A double junction for the demonstration of Mullard electronic interlocking (diagram 1) and (diagram 2) sequence of operations in proving the route

The present development of electronic circuitry for signal interlocking is the direct result of a suggestion made to the Imperial College, in London, by Mr. A. W. Woodbridge, the British Transport Commission chief signal engineer, that the problems of applying electronics to signal interlocking should be a subject for post-graduate research. The suggestion was accepted and a thesis prepared by two graduates formed the basis of a paper presented to the Institution of Railway Signal Engineers. The thesis proved to be a valuable theoretical contribution toward solving a somewhat complex problem, and a contract was placed with Mullard Equipment, Limited, to develop a practical method of applying electronic techniques to signal interlocking which would meet the necessarily stringent safety requirements of the railway signalling system.

The project has been sponsored for the British Transport Commission by the Western Region, whose signal engineer, Mr. A. A. A. Cardani, has collaborated in the development since its inception, and who recommended Henley-on-Thames as a suitable box for field trials.

Demonstration Model

The demonstration model seen last week works on the conventional "entrance-exit switch and push button" system, and track and point indication is provided. The only relays used are track relays and, for convenience in the demonstration, these are of the Post Office type. In order to set up a route on the model, for instance, in the direction B to D (see diagram 1), the direction switch at B is set to direction B to F and the exit button at D is pressed. This action results in the points 100 and 101 being moved to the reverse position. These points are interlocked and the sequence is that 101 is reversed first and when it has been detected as being reversed, the points 100 are reversed. However, this route B to D can only be called provided that the information from the track circuits involved indicates that there is no vehicle on the track and also that the points are not locked—that is to say, that a prior route has not been set up along, for instance, E to A.

A simplified example of a sequence of events is shown in diagram 2. The pulse from the push-button at D is fed to an "Or" gate which sets up a feedback to maintain the circuit. The output from the "Or" gate is fed, together with the signal from the switch at B, to the "And" gate which then—and only then—gives an output to the first track circuit "And" gate. This input together with the input from the track circuit (provided this is clear) will result in an output to the next track circuit "And" gate and so on. After all the track circuits have given the information that they are unoccupied, the points 101 are reversed, provided they are not locked, and the signal from the track circuits together with the information that 101 is now reversed and locked is fed to another "And" gate. The points 100 are now reversed and locked, and this information, together with the output from the last "And" gate, is fed to the final "And" gate, the output of which clears the signal at B (see diagram 1).

This is a logical process and if for any reason the required information does not reach any one of the "And" gates in the chain the sequence will be broken and the route will not be cleared. When a route has been cleared and a train travelling in the direction B to D, for example, has passed over the first track circuit in the route, the signal is automatically returned to red. Although the direction switch is still set, this route cannot be used again, by pressing the exit button, until the whole sequence of calling has been repeated.

Safety Measures

In addition to the interlocking of the points and the use of track circuits, there is also a device whereby if a signalman has set up a wrong route (B to F instead of B to D for instance) he is unable to reset the route immediately if a train has already entered the approach track circuits. He can, however, set all the signals to red, and after a suitable time delay to allow the train to stop the route can be reset. Obviously if this device were not included a signalman would be able to reverse the 100 points, which may not complete their movement before the train reached them and thus cause a derailment.

The logic system can therefore provide an anti-preselection device and an approach locking device to meet signalling requirements. Track circuits of the normal type are used. The electronic logic units from which the system is constructed are of the plug-in type. They are designed to operate safely in ambient temperatures between −20 deg. C. and +50 deg. C. They employ Mullard transistors, semi-conductor diodes and ferrite cores. The "fail-safe" electronic technique outlined is based on the company's experience in the application of modern electronics to safety problems. The present equipment has been designed to meet the requirements of British Railways, but it is generally applicable to railway systems anywhere in the world.

At Henley-on-Thames, for convenience, point operation will be carried out manually by the signalman through the existing lever frame, but under the control of the route-setting system.

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MORGAN CRUCIBLE

Change of Address

ON April 1, 1961, as part of the Morgan Crucible group reorganisation, already announced, the crucible department will become a wholly-owned subsidiary company of the Morgan Crucible Co., Limited. It will be called Morganite Crucible, Limited, and will operate from Norton, near Worcester, location of the Suprex factory. In preparation for this change the crucible sales department and some of the technical staff have been transferred from London to Norton.

As from Monday, October 5, communications formerly made to the sales or technical departments at Wandsworth, London, should be sent to the Morgan Crucible Co., Limited, Norton Works, Worcester. Telephone number: Worcester 26691. Telex: 33191. Mr. K. R. Mayhook, who was home sales manager, has been transferred to other duties within the group. Mr. D. Scott, now in charge of the sales department at Norton, will become, on April 1, 1961, sales director of Morganite Crucible, Limited.

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The first Python aircraft refueller built by Thompson Brothers (Bilston), Limited, for the Esso Petroleum Co., Limited, was handed over recently It embodies a Foden tractor unit

OFFICIAL NOTICES

WESTERN WELSH OMNIBUS CO., LIMITED

SECRETARY/ACCOUNTANT

THE Western Welsh Omnibus Co., Limited, operating a fleet of some 664 public service vehicles, invites applications for the position of Secretary/Accountant, which will become vacant early in 1961.

Applicants should be between the ages of 30 and 45, possess a recognised accountancy qualification, and must have a sound practical knowledge of company taxation. Previous experience in the passenger road transport industry, although not essential, would be an advantage. The starting salary will depend on the qualifications and experience of the successful applicant. There is a contributory pension scheme.

Applications, stating age, education and family status, together with particulars of existing and previous employments and present salary and indicating the earliest date on which the position could be taken up, should be sent under "Private" cover to the general manager of the company at Central Omnibus Station, Wood Street, Cardiff, by December 31, 1960.

LEICESTER CITY TRANSPORT

TENDERS FOR MOTOR BUS BODIES

TENDERS are invited for the supply of:
Five all-metal Double-Deck Bodies 30 ft. long by 8 ft. wide to seat 74 persons, and suitable for fitting to Leyland P.D.3/1 chassis.

Specifications and forms of tender may be obtained from the undersigned and on completion should be delivered in duplicate to the address below in plain sealed envelopes endorsed "Tenders for Motor Bus Bodies" before 10 a.m. on Wednesday, January 4, 1961

JOHN COOPER,
General Manager.

Abbey Park Road,
Leicester.

NEWS FROM ALL QUARTERS

Swedish Railway Surplus

Swedish State Railways reports a surplus of 53 million kröner for the fiscal year 1959-60. Most of this profit is due to intensified rationalisation and modernisation.

Ferryfield Visitor

The Minister of Aviation visited Ferryfield Airport, Kent, the home of British Aviation Services, Limited, on December 1. He toured the airport and lunched with the Silver City directors.

Western Region Closure

The Western Region announces the closure of Carn Brea Station, between Redruth and Camborne, for passenger and parcels services from January 2. The goods depot will remain in use as a public delivery siding.

Improvements at Holyhead

Alterations to the customs shed at Holyhead are nearly complete, and it will be ready in time for Christmas. An extra platform is being built to enable special services to run into the station without delay and the layout of the examination shed has been improved to facilitate speed in handling passengers.

Perkins Towing Tractor

The U.S.-built Solar Jupiter 500-h.p. gas turbine —now being marketed by Perkins Gas Turbines, Limited, in Europe and many other parts of the world—is to go into a new jet aircraft starter unit and fowing tractor designed for use aboard the American Navy's aircraft carriers. The tractor is only 36 in. high, enabling it to move under the wings of most planes.

Fork Trucks for Hire

George Cohen Sons and Co., Limited, is now offering fork-lift trucks on contract hire in the same way that cars and commercial vehicles have been available for some time. George Cohen already offers fork trucks on daily, weekly or monthly hire. The fork trucks now offered on contract hire are Coventry Climax models. A replacement truck is provided every 3-5 years.

E.C.E. on Transport Costs

The working party on transport costs, a subsidiary body of the Inland Transport Committee of the Economic Commission for Europe of the United Nations, held its tenth session from November 14 to 17, 1960, at Geneva. During part of the session the working party discussed a memorandum from the U.S.S.R. concerning methods of comparing the economic return from the electrification with that from the dieselisation of the railways in the U.S.S.R., and the results obtained. Although, on the whole, all the railway networks in Europe use much the same methods for comparing the economic return from the two forms of traction, the traffic threshold above which electrification is more advantageous than dieselisation is much higher in the U.S.S.R. than in the other countries. The question will be studied later by experts in railway administration who will exchange complete balance-sheets for electrification with a view to making comparisons.

Underwater Storage

A new American idea to reach this country is underwater storage. It is stated that fresh water, fuels, tinned foods and medical supplies could be stored in rubber tanks in depths of 200 ft. of water.

Burton Traffic Ban

The Ministry of Transport has confirmed an order banning through traffic from the centre of Burton-on-Trent in an attempt to relieve congestion. The ban will be reviewed after two years.

U.T.A. Closures Likely

There is a strong probability that further railway closures in Northern Ireland will take place in the near future. It is no longer possible for the U.T.A. to carry the present heavy losses.

Radar at Kastrup

Radar installation at Kastrup, Copenhagen's new international airport, is well on the way to completion and is expected to be operational this month. The airport is being equipped with Marconi high-power radar equipment.

Kariba Cargo Boat

Kariba's first passenger and cargo boat, the *Zambesi*, goes into service in January. Capable of 12 knots, she will be able to make the five- or six-day trip across the lake bordering Northern and Southern Rhodesia.

Swiss Road Tunnel

Construction has begun on a four-mile long tunnel in the Grisons canton of Switzerland, which will link the upper reaches of the Rhine with the Italian-speaking village of San Bernardino. It is being built to attract some of the heavy motor traffic which at present uses the St. Gothard Pass.

German Anniversary

A special train was run on December 7 between Nuremberg and Fürth to celebrate the 125th anniversary of the first German railway. It was hauled by the *Adler*, a replica of the original locomotive made by George Stephenson, and took 20 min. to cover the 6-km. route.

Styrene Monomer Plant

Forth Chemicals, Limited, is to build a new 50,000 tons per annum styrene monomer plant between Neath and Port Talbot, South Wales, at a cost of more than £3 million. The new plant will be located next to the site selected by British Hydrocarbon Chemicals, Limited, for its own recently announced expansion plans.

Air-Conditioning Unit

An unusual use for Perkins Engines, Limited, small six-cylinder engines is air conditioning of aircraft cabins. Fitted in Godfrey air conditioning trucks, they supply air at controlled temperatures and pressures for cooling cabins and electronic equipment. The trolleys are built low to cause minimum obstruction in the vicinity of aircraft. The cooling system operates on an air cycle and only air is used

COMMERCIAL AVIATION

North Atlantic Freight Boom

MACH 2 AIRLINER PROPOSED

RECENT entrants into the North Atlantic freight market are Trans World Airlines and B.O.A.C. They join Pan American, K.L.M., Alitalia and Lufthansa in operating all-freight services on this route. B.O.A.C. are, in common with three of the other operators, using Douglas DC7F freighters on a twice-weekly service. T.W.A. are having 12 Lockheed L-1649A Jetstreams converted for their freight services, which will also be twice-weekly. It is too early to say whether this market will be overcrowded, for all these airlines, and many others, can offer transport on their jet passenger services for all but the bulkiest goods. The airlines will also find that their profit margins may be cut considerably when I.C.A.O. meets to decide how much freight charges must be lowered to compete with sea traffic. It is a bold venture for the airlines concerned may find that under these circumstances their costly conversions will be useless.

Two Hops Brussels—Mexico

Sabena introduced a Brussels—Mexico City service via Montreal on December 2, using a Boeing 707 Intercontinental. The trip takes 13 hr. and is operated twice-weekly. Sabena already operates a service to Montreal using 707s.

Fare Reductions to Middle East

Fares to the Middle East are to be drastically cut by B.O.A.C., Qantas Empire Airways and Middle East Airlines. These reductions are on return economy-class fares with the aim of promoting European tourism.

New I.C.A.O. Members

Four African states have recently become members of the International Civil Aviation Organisation. The addition of the Republics of the Ivory Coast, Mali and Senegal and the Federation of Nigeria brings the total membership to 83.

Lufthansa Loss

Deutsche Lufthansa had a loss of just over £3¼ million on last year's working, despite increases of 26 and 60 per cent on passenger and freight transport respectively. Lufthansa still carries only 15 per cent of internal traffic, partially because Berlin is only served by foreign airlines.

Mach 2 Airliner Proposed

A 2,000 m.p.h. supersonic airliner has been proposed by the U.S. Government. It will be based on the North American B-70 Valkyrie bomber. With this scheme in mind, it is hard to see how America believes Great Britain will be able to co-operate as was originally planned when a completely new design was proposed. It is expected that the cost of the project will exceed £350 million.

Air Traffic in October

The Ministry of Aviation provisionally estimates from returns received to date that United Kingdom airline traffic on scheduled and inclusive tour services in October amounted to 42 million short-ton miles. This represents an increase of 19 per cent compared with October last year. Capacity operated increased by 23 per cent and the overall load factor fell by one per cent to 60 per cent.

B.E.A. Fare Increases

Due to an increase in landing fees at domestic airports, British European Airways is to increase tourist-class fares by 3½ per cent next April. First-class fares will be unchanged. Although these increases may seem heavy, it is to be remembered that there were 47 per cent reductions recently on certain tourist-class fares between London and Glasgow, Edinburgh, Belfast and Manchester.

Air Ferry Delay

Irish authorities have still not approved Channel Airways' application to fly a car ferry service from Withybush to Dublin and Cork. If approval is not given soon it will be impossible to start services in time for the 1961 summer season, as considerable time will have to be spent converting Withybush for airline service. Withybush, near Haverfordwest, was a 1939-45 war Royal Air Force aerodrome, but it has not seen much use since then.

Helicopters to the Scillies

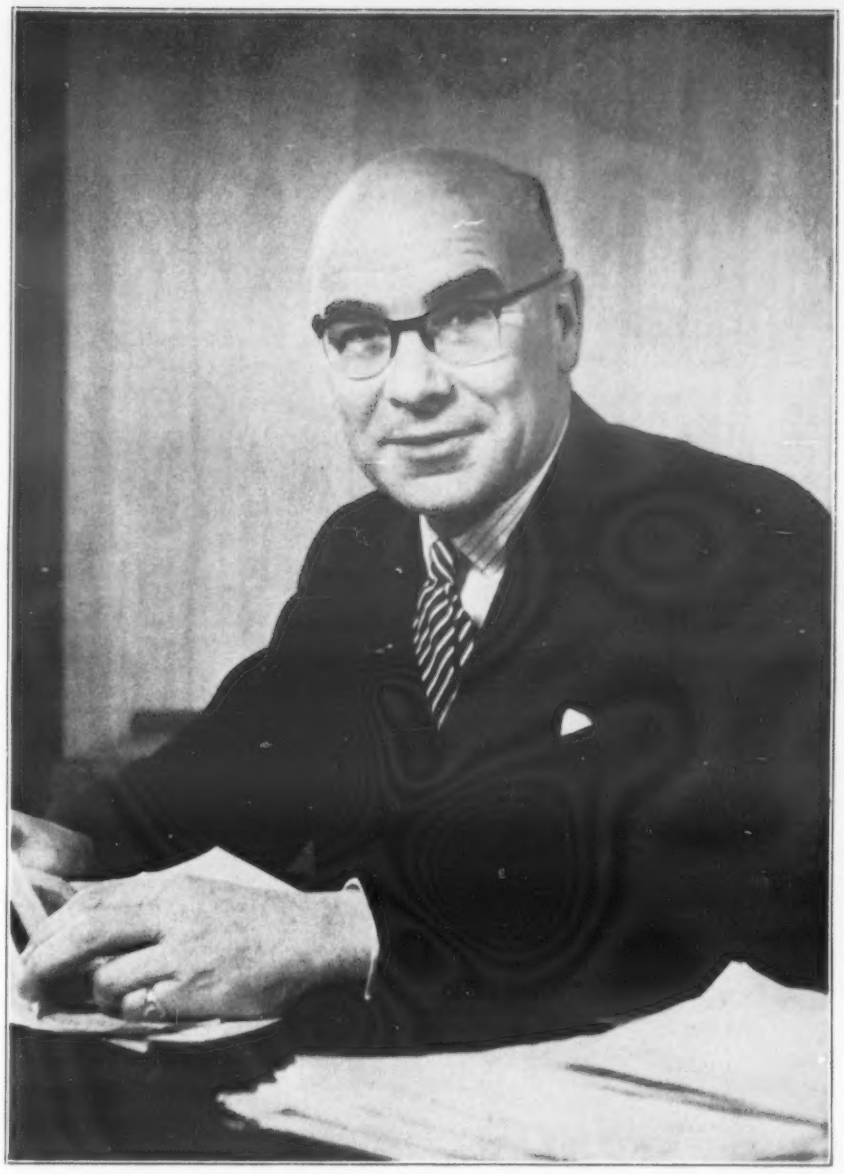
B.E.A. and the Ministry of Aviation have been discussing a scheduled helicopter service to the Scilly Islands from Land's End. B.E.A. has asked the Ministry for a subsidy of £45,000 a year for three years. According to B.E.A., this would be saved in not running the airports at St. Mary's and St. Just. It is believed that B.E.A. will use either a Boeing-Vertol 107 or a Westland 192C, a commercial version of the Belvedere.

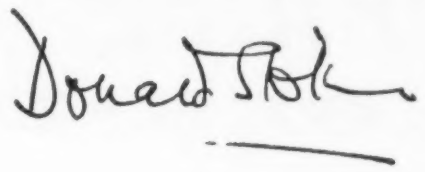
British Traffic in September

During September, 1960, capacity ton miles offered by United Kingdom airlines on their scheduled services increased by 22·7 per cent and total traffic carried rose by 19 per cent; freight ton miles increased by 13·1 per cent and mail ton miles increased by 18·4 per cent; 727,303 passengers were carried, or 22·6 per cent more than in September, 1959, and these passengers travelled 466·3 million passenger miles, or 21 per cent more. The overall load factor fell from 66·1 per cent to 64·1 per cent. During the four weeks ended September 24, 1960, capacity operated on B.O.A.C. scheduled services went up by 23·3 per cent compared with the corresponding period in 1959—capacity on Western routes increased by 37·4 per cent and on Eastern routes by 8 per cent.

Total traffic carried rose by 28 per cent on Western services and by 15·5 per cent on Eastern services. The total of 75,789 passengers carried by B.O.A.C. was 27·5 per cent more than during September, 1959, and these passengers flew 253·8 million passenger miles, or 24·3 per cent more. The overall load factor dropped from 62 per cent to 61·2 per cent. B.E.A. offered a total of 21·7 per cent more capacity on scheduled services in September, 1960, than in September, 1959; capacity on international services increasing by 20·6 per cent and on domestic services by 25·1 per cent. Total traffic carried rose by 18 per cent. 252,053 passengers, or 14·2 per cent more, travelled on international routes and 206,924, or 23 per cent more, travelled on domestic routes. These passengers flew 121·3 million passenger miles, or 16·4 per cent more on international services and 45·3 million passenger miles, or 25·3 per cent more, on domestic services. The overall load factor fell from 74·2 per cent to 71·9 per cent.

SCAMMELL EXPANSION





Mr. D. G. Stokes, T.D., M.I.Mech.E., M.S.A.E.

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A member of the rapidly expanding Leyland group growing greatly in importance—it has the reputation of being the largest trailer builder in Europe—is Scammell Lorries, Limited, of which Mr. Donald Gresham Stokes was appointed managing director in August this year. Born in 1914 and educated at Blundell's School, he began an apprenticeship with Leyland Motors, Limited, in 1930. During the war of 1939-45 he saw service in the Middle East and in Italy. Leaving the Army with the rank of lieutenant-colonel, he returned to Leyland in 1946 with schemes for an export programme. Appointed export development manager, he made extensive surveys of transport conditions in practically every country in the world. In 1948 he was made export manager and in January, 1950, at the age of 35, he was appointed general sales and service manager of Leyland, in which capacity he controls the Leyland, Albion and Scammell sales and service activities both at home and overseas. In 1954 he became a director of Leyland Motors, Limited, and has since joined the boards of many of Leyland's subsidiary companies in this country and abroad. He is also a director of British United Traction, Limited, and Empresa Nacionale de Autocamiones, S.A., the Spanish company making PEGASO trucks and buses. During the past 10 years he has become one of the widely travelled men in the automobile industry. First and foremost, Mr. Stokes is a salesman and a successful salesman, not only for his company but for Britain. As long ago as 1950, he obtained Britain's largest single dollar order for 620 Leyland Royal Tiger buses for Cuba, valued at 10,000,000 dollars. Since then he has built Leyland's export trade to well over £30 millions annually. Now he is competing with the U.S.A. in that country, and has made a good start there in the sale of Leyland trucks. Mr. Stokes has been a member of the council of the Society of Motor Manufacturers and Traders since 1953, became chairman of its Heavy Vehicle Manufacturers' Section in 1957, and is a vice-president, 1960-61.

LETTERS TO THE EDITOR

Great Eastern Line

WAS IT WINDOWS BRIDGE?

The Editor is always glad to receive letters from readers on subjects germane to the transport industry, but these should be written as concisely as possible. The opinions expressed therein must not, however, be regarded as having editorial endorsement. Where correspondents desire to use a nom-de-plume it is essential that the Editor should be informed of the name and full address of the writer as indication of good faith.

SIR,—Because of widely differing circumstances, one is naturally rather cautious in comparing progress in one region with another. Still less is it wise to rush into print on the subject. But no one who has followed the process of revitalisation, modernisation, call it what you will, can fail to be immensely impressed by the achievements of the Eastern Region Great Eastern Line management. The vigour and speed with which dieselisation and electrification has been brought to fruition, handling of parcels traffic concentrated and freight handling reorganised is quite remarkable. There is more to come, of course, before the intricate scheme is complete. To this must be added the extraordinary steps taken to publicise the stages by which all this work has been carried out, so creating an interest in the line's activities which can have only good results.

It should be remembered that this revolution has taken place during a period of unprecedented non-stop upheaval, reorganisation, reappraisal, study groups, ill-informed criticism and the rest, conditions likely to discourage even the most zealous and hard-working railway officers. For that reason, these solid improvements are all the more noteworthy. In my view, Sir, Mr. W. G. Thorpe, the line traffic manager, and all the Great Eastern Line staff concerned deserve special praise for the outstanding success of a policy carefully planned and diligently pursued.—Yours faithfully,

C. R. CLINKER.

9 *Regent Place,*
Rugby, Warwickshire.

Windows Bridge

SIR,—There is considerable evidence to prove that the bridge at The Dittons, over the Rythe, and now referred to as Giggs Bridge, is the one known to the London United Tramways as Windows Bridge and subsequently as Winters Bridge. In the days of Sir James Clifton Robinson, official maps were issued which named Windows Bridge as being at The Dittons tram terminus. Furthermore, old photographs show that the southbound stop signs in Claremont Road by the crossover road—"Electric Cars for Tolworth stop here" and below—"Electric Cars for Windows Bridge Stop here."

The open top cars, however, showed "The Dittons" on the front indicators, but the later "T" class cars had side boards reading Kingston Hill—Winters Bridge. The tramway to The Dittons was opened on March 1, 1906, and a through service was operated from Richmond Bridge via Hampton Wick; but on May 26, 1906, with the opening of additional new track to Ham Boundary and Richmond Park Gates, the services were reorganised on a more local basis.—Yours faithfully,

MERVYN GIBSON.

Dennett Castle House,
Wightwick,
Nr. Wolverhampton.

SIR,—In your issue of December 3 your correspondent Mr. J. P. Bardsley questions the location near Kingston on Thames of Windows Bridge. This was the name given by the London United Tramways to the terminus on the Portsmouth Road near Thames Ditton. But the really intriguing fact (which we could never understand as children) is that only the blue trams running over this route were labelled "Windows Bridge." The red ones, destined for the same spot, had the label WINTERS Bridge in front.—Yours faithfully,

E. C. CHEESMAN.

Four Doves,
Marlow,
Bucks.

SIR,—Mr. Bardsley's letter, published in your issue of December 3, is very misleading. I resided in the area for 12 years, between the world wars, and travelled by L.U.T. tram almost daily to Surbiton Station. During that period trams from Tolworth ran to and from Richmond Park Gates and those from Windows Bridge, which was the Dittons terminus, ran to and from Kingston Hill. The only exceptions to this were service vehicles and cars proceeding to and from the car shed.

Trams never ran during this period from Tolworth to Windows Bridge; apart from the fact that there would have been very few passengers wishing to make such a journey the base of the triangular track outside Surbiton Station was in no condition to be used.—Yours faithfully,

UNRAMMELLED.

London, S.W.1.

SIR,—The correct description of the L.U.T. terminus on the Portsmouth Road was evidently as much in doubt in the early years of the line as it is now. The *Tramway World* for June 6, 1907, described the Kingston routes in an article which was illustrated by a map showing the Dittons terminus as Window Bridge, while a photograph of a car on the route showed a sideboard with the name Winter's Bridge. Some years ago Mr. J. C. Gillham kindly gave me a copy of a postcard showing the Hampton Wick approach to Kingston Bridge and obviously dating from about 1908-10. In the foreground is a bogie car with a sideboard clearly reading "Richmond Bridge and Windows Bridge." A fourth variation is provided in the technical papers of the period, which usually refer to Winder's Bridge.—Yours faithfully,

CHAS. S. DUNBAR.

9 *Christchurch Road,*
Malvern, Worcs.

The sales division of the Avon India Rubber Co., Limited, now handles the sale of Avon agricultural and industrial tyres. These sales were previously managed by the Avon subsidiary J. W. and T. Connolly, Limited. The Connolly company continues to handle the sales of agricultural and industrial tyre and axle equipment in the original equipment field.

SOME TRAFFIC PROBLEMS

*Experiences in London (Contd.)**

By A. SAMUELS, C.B.E., A.M.I.Mech.E., M.Inst.T.,
Chairman, London and Home Counties Traffic Advisory Committee

CONTROL of waiting by commercial vehicles has been an essential part of these first parking-meter schemes. They all provide that adequate space should be left for commercial vehicles to wait for short periods in places where they will not cause obstruction, and equally they restrict such waiting in places, particularly at intersections, where waiting by any vehicles will cause obstruction. There have also been some experiments outside the central area of London with restrictions on waiting by commercial vehicles during the peak hours on the main arteries. All-purpose roads serve to provide access to premises, as well as to provide for through traffic; commercial premises depend on the facilities for vehicles to load and unload outside them. The position is complicated by the hours of the markets in London and the need for shops to have fresh produce every day. This is the type of problem where it is impossible to generalise, and where each proposal has to be looked at on its merits, in the light of the effect that the proposal may have on the freedom of traffic, and also on the needs of the individual premises that are likely to be affected.

As the central road system is cleared of its dead weight of parked cars, so it becomes increasingly possible for the traffic engineer to apply his techniques to improve the flow, and a number of interesting schemes are now in operation. Much more can be done through the introduction of one-way systems, and by adequate linkage and control of traffic lights. We have carried out one very successful "tidal flow" experiment, at Chelsea Bridge, to increase the flow of traffic at peak hours by giving the main flow more than half the road.

Complete and radical reconstruction of London is not practical. It might be possible to argue that the means of transport for the future is the private car, that restrictions cannot succeed in the long run, and that London must therefore be rebuilt to cater for the car. Apart from the enormous cost, and the length of time the work would take, there are social arguments against such a radical solution. London is not just one but a collection of communities, each with their own life. To disrupt these would clearly be unsatisfactory. Furthermore the reconstruction would be on such a scale that if the task were undertaken, and roads fit for cars were built, it would still not be possible to say that the reconstruction of London as a whole had achieved its objective of saving London as we now know it.

The concept of traffic engineering in this country is a new one, but I think it is clear that even quite minor schemes can produce large dividends. The London Roads Committee under the chairmanship of Sir Richard Nugent recommended a programme of major schemes over the next 10 years, based on the amount of revenue likely to be available, concentrating on improvement of existing main arteries and removal of bottlenecks. Plans were designed to increase the traffic capacity of the main routes affected by about 50 per cent over 20 years. In my view, this is not sufficient. I think the evidence of the last few years, and the forecasts of the Road Research Laboratory, show that much more than this will be needed. The only sensible way to plan, as all American cities do, is on the basis of a comprehensive and up-to-date traffic census.

More Needed

Sticking my neck out, I suspect that a census will show the need for much more comprehensive road planning than the Nugent Committee thought necessary, and I still think that we ought to have another look at the original "A" ring road project which was dropped about 1950. We must not sacrifice London to the motor car. But, in my view, we shall only cope in the future if we have a limited number of main roads reaching more or less into the centre (perhaps about a dozen in all) each of them up to motorway standard and with limited access, and connected to each other by a small radius ring road. Traffic desiring to go through London would use these roads, and would never have to use the ordinary all-purpose roads at all. Traffic wishing to stop in Central London would be able to come close to the centre by these motor roads, and would only have to do the last mile or two by an ordinary all-purpose road.

Quite apart from the question of cost (and the Minister of Transport has recently said that there will be very much more money available for roads in urban areas) major improvements in a city like London take time, if only because of the problems of land acquisition and the legal procedure which must be followed. In the meantime I am attracted by the idea that in selected places, where there is enough room, we could build flyovers quickly and cheaply using the Bailey bridge type of construction.

Overall Traffic Pattern

Of more than a million people who travel into Central London to work every day, 90 per cent still use public transport and, of these, three-quarters travel by rail and tube. Inevitably, therefore, if London's road traffic problems are to be tackled on the right lines, they must be considered in their proper relationship to the overall London traffic pattern, taking into account the various forms of transport available and the part which each must play. The large-scale carriage of people by private car into city centres makes extravagant demands upon space by comparison with their carriage by train and bus, particularly since it so frequently happens that a large car is used to carry only one person. In some cities where traffic planning has been based on the private car as the principal means of passenger transport, vast areas of valuable space in the city centre which might otherwise have been used gainfully are now occupied by roads and car parks. There is a grave danger that this erosion by roads and car parks will lessen the value and importance of the city centre and encourage a type of decentralised sprawling urban development which, in this small country, could quickly absorb what countryside is left.

Against this background, it seems clear that some control over the number of vehicles trying to enter London is necessary. Without control of some kind there would be an inevitable drift and we should be faced with a London where traffic is immobile, or where re-planning has covered half the south of England with houses. It has been suggested that the traffic authority should be entitled to say that no private car should come into the inner area. I do not think that this is practicable. That leaves us with financial control. The best method of financial control is through control of parking, because that leaves it to the individual's choice whether or not he should make a particular journey on a particular day. He need not decide in advance, there is no question of buying a ticket, he merely pays when he arrives. That means that we must not provide more parking facilities whether by way of parking meters on the street, or by way of off-street garages, than is necessary for the number of cars that the street network can accommodate on their way in and their way out. For the remainder of the travellers (and I return to this in a few minutes) we have got to make public transport sufficiently attractive. We must provide sufficient garages for those people whose essential duties necessitate their parking in London, and who may have to park for longer periods than could be catered for on the streets.

Role of Public Transport

According to a census taken in July this year, a total of 1,270,000 people came into Central London between 7 and 10 a.m. daily. Of this total, 1,149,000 came in by public transport (927,000 by rail and tube) and 121,000 only by private transport. Since 1957 this represents a total increase of 40,000, or 3 per cent. Rail traffic has increased during this period, public road transport has decreased and private transport has increased. But despite a large increase in the number of private vehicles bringing people to work the numbers travelling by road on public and private transport together has already dropped by 1 per cent. Of all the people arriving in Central London nearly 600,000 arrive by public transport between 8.15 a.m. and 9.15 a.m., and 620,000 leave between 5 p.m. and 6 p.m.

The private sector of transport is growing, but at the present just under 90 per cent of commuters still come into London by public transport. Many of the traffic solutions proposed for individual difficulties relate to the problem of moving a greater number of vehicles down a particular street, but it is clear from the figures that there is no hope of dealing with congestion in London if a markedly greater proportion of commuters decides to use private transport. One of the vital questions is, therefore, whether public transport can be made sufficiently attractive to continue to cater for the existing proportion of commuters and possibly to attract some of those who at present prefer private transport. The temptation for people to switch over to private transport is great. With the rising standard of living, more people buy cars, and the mere ownership of a car is itself a temptation to use it. But the greater the congestion on streets the less regular and attractive public road transport must become, and the greater the attraction for travellers to desert the buses. There are all the indications that we have entered a vicious circle which, if it is not broken quickly, can only lead to the disintegration of our public transport system. If that happens, and many more commuters use cars, it will strangle the whole life of London. I can find no words to describe the catastrophe that would result.

How to Exert Control?

Some means of control is necessary. As I have already suggested, it seems to me that the right method is a financial one. The difficulty up to now has been that the car owner does not bear his full share of the cost. That may sound a provocative statement with taxation as high as at present. But a commuter with a car, when he considers whether or not to use the car for his daily journey, does not take all the cost into account. He probably ignores depreciation, and he may only consider whether the cost of the petrol and oil for the journey is much greater than the cost of the public transport ticket. In many cases it will be less. But if we make him pay the full cost of his parking facilities in the centre then the cost of the private journey may well be very much greater. If, therefore, we are to make public transport more attractive than private transport, it is essential that parking facilities in the centre should not be subsidised.

But to return to the main argument, what are we to do about public transport? First we must look at the pattern of the public transport system. The main-line railways project outwards from the central hub of inner London, which is surrounded by main-line stations. Inside the hub connecting radial spokes are provided in part by the tube lines, but there is a bad gap from Victoria north-eastwards which the proposed Victoria Line is designed to fill. To some extent these inner spokes are provided by bus services. The tube lines also supplement the main-line radials outwards from the hub. The main-line radials, with this help from the tubes, already cover most areas adequately, and the worst gap would be filled by the Victoria Line. But compared with the pattern of the main-line radials the inner spokes give an impression of haphazard planning.

Seating

Obviously this system can carry large numbers from homes near the main radials to destinations near the hub main-line stations. It can also carry smaller numbers in some direction only through and across the hub. It is, generally, not suited to carry people from one suburban area to another going across the line of the radials. It is ideally placed to take large numbers from suburban dormitory areas near main lines to offices near the main stations. It does much less well when a long journey in the hub is involved. That is why travel to offices in the City is on average so much easier than to offices in Mayfair. I will discuss the planning aspect of this a little further in a minute. But the immediate point is that at least we should ensure that the radial pattern is completed, and build the Victoria Line.

Main-line and tube trains are already filled to capacity at peak hours, with as many standing passengers as can be physically crammed in. At most other times, there are spare seats. Could we not, as an interim measure, increase the standing capacity, by removing seats from some of the coaches, for the shorter journeys at peak hours? A better way to try to tackle this aspect is to reduce the peak-hour load. It is uneconomical for the authorities to provide additional transport facilities merely to cater for this peak-hour load, but at the same time present conditions are intolerable. The London Travel Committee has been trying for some time to increase staggering. Since the begin-

(Continued on page 11)

* Abstract of paper read before the Royal Society of Arts. First portion appeared December 16.

L.T.E. Research Laboratory

(*Continued from page 3*)

and technical photography, the latter being linked for administrative purposes with radiography and metallography, though much photographic work of a more general character is also carried out. The physics laboratories and photometry room, main stores, and rooms for the preparation of reagents and for the cleaning of sample bottles and glassware are also on the ground floor.

The upper floor has groups of laboratories devoted to testing of fuels and lubricants, paints and allied materials and textiles, and for general chemical work of an exceptionally wide range. In each group, small laboratories are provided for investigational and research work and, in particular, one of the chemical laboratories has been designed to be suitable for work involving the use of radio-isotopes at a low level of activity.

Weathering Paint

The paint application laboratory is connected with the annexe by a bridge (which also gives cover when passing from one building to the other), giving access to the roof of the smaller building, which is used for weather-exposure testing of paints. It replaces the former station on the roof of the Chiswick Works canteen; a second test station on the roof of Upton Park Garage is being retained so that tests can be made under atmospheric conditions relating to East as well as West London. In addition to direct exposure to the weather, accelerated weathering tests on paints can be carried out, using an existing apparatus which has been rehoused in the new building. Also available is a hookah device for projecting tobacco smoke against paint intended for use on vehicle ceilings. Also on the upper floor are a conference room, library and offices for the senior scientific staff and clerical services.

The greatly improved accommodation makes it possible to use existing equipment more effectively and to provide urgently needed additional modern apparatus for every section of the laboratory. In particular, the opportunity has been taken to provide facilities to meet known demands for laboratory services which could not previously be satisfied. For example, the screened room for radiographic examination of metal components enables a vital technique in the investigation of failures of such components to be used. The equipment in this room includes a 260-kV. industrial X-ray set and the room will also be available if required for gamma-radiography of thick steel specimens using a 5-10 curie source of cobalt 60. Advice on the precautions necessary to provide adequate screening was obtained from the Radiological Protection Service.

Similarly, experience with a small cold chamber, installed some three years ago in a temporary hut revealed a latent demand for such equipment and the better facilities now available in the new laboratory will further assist in the development of conductor rail de-icing fluids, in the testing of alternative methods of de-icing and in investigating problems relating to the performance of air-operated and other mechanical and electrical equipment under low-temperature conditions. Although these conditions are comparatively rarely met, full insurance must be made against them.

Demands for the testing of textiles (uniform cloths and linings, weatherproof clothing, upholstery materials, etc.) have grown to a considerable extent in recent years and the provision of an air-conditioned room and additional ancillary equipment will facilitate this work considerably. The air-conditioned room enables physical tests on textiles to be carried out under standard conditions of temperature and humidity. New equipment for textile testing includes a ballistic tear resistance apparatus, water repellancy testing equipment, and fade resistance apparatus.

The importance of work on lubricants has been recognised in the provision of a laboratory for long-term studies of their chemical and physical behaviour and an automatic oil oxidation apparatus is among the items initially acquired for this section Various types of equipment have been installed for the mechanical testing of lubricants, and a standard single-cylinder diesel test engine permits, inter alia, the determination of the ignition quality (cetane number) of the fuel used in buses. The availability of heat treatment furnaces and welding equipment enhances the value of advice given to the engineering departments on metallurgical problems by augmenting existing facilities for such investigations.

Engineering Research

The greatest expansion is in the facilities now available for research devoted to engineering problems. In recent years much work has been done in assisting the engineering deparments in the investigation of problems—notably by the application of strain gauge techniques—and this side of the work has been greatly strengthened by the acquisition of further equipment. Equally important, provision has now been made for major engineering research to be carried out within the laboratory itself. In the first instance, attention will be concentrated on work with a machine for studying fatigue in railway axles which has been designed and constructed under an extra mural research contract by the Mechanical Engineering Department of the University of Nottingham. Ample space has been allowed for the expected growth in the engineering aspects of the laboratory's activities.

The research department library has hitherto been divided between the headquarters office at 55 Broadway, Westminster, and the laboratory, an arrangement which was unsatisfactory but was necessitated by the lack of space. The library is now accommodated entirely within the new building, where the research librarian will be in permanent residence, but the library will continue to serve the department as a whole.

The new research laboratory has been designed to the requirements of Mr. A. T. Wilford, A.R.C.S., B.Sc., F.R.I.C., F.S.S., C.I.Mech.E., F.Inst.Pet., director of research, London Transport, by Adie, Button and Partners, architects, in association with Mr. T. R. Bilbow, F.R.I.B.A., former architect, London Transport, and Mr. K. J. H. Seymour, A.F.C., F.R.I.B.A., the present architect.

London Traffic Problems

(*Continued from page 10*)

ning of 1957 it has been possible to persuade 274 firms employing in round terms 50,000 staff to begin and end their working day outside the peak travel period. But this is clearly only an insignificant contribution, and I am sure that we must do much more under this head in the future.

Need for Responsible Body

Again we come back to the central problem of responsibility. If there were one body with responsibility, it would have to look realistically at the present situation. We cannot cater for private car transport; therefore we must depend on an efficient public transport system. But it is no good saying this, if the buses are not there to carry the people. If there were a major authority for London, with responsibility for roads, traffic and transport, then it would have to look realistically at all aspects of bus operation in order to ensure that buses were available.

At present, the London Transport Executive as the executive body of the British Transport Commission, is placed in a difficult position. On the one hand it has the duty of providing an efficient public service; on the other it has the obligation to make ends meet. As chairman of the London Travel Committee which reported to the Minister of Transport on the case for the Victoria Line, I may perhaps be permitted to quote one sentence from the report: "We recognise that the line is not prima facie a profitable commercial investment as things are. But we believe that the improvement that the line could bring to the public transport services in London is necessary and that this improvement would confer large benefits on the travelling public."

If there were a single authority (of whatever type) ultimately responsible then it might decide that it was cheaper to subsidise public transport, to make certain that the services were good enough to protect the social fabric of life in London, rather than to be forced to undertake road construction to the extent that would be required to enable a much larger proportion of the public to travel by private car. Certainly that is a question which must be faced before the public transport system is allowed to deteriorate further. The best time to get out of a vicious circle is at the start. There is one further practical suggestion I should like to make. By tradition most buses use the main routes. Now that, with parking meters and additional one-way workings, we have cleared so many of the secondary routes through the West End, I suspect that the buses would be more efficient if some of them used these secondary routes, such as George Street and Upper Berkeley Street. The routes themselves are not sacrosanct, and we ought to examine them to try and prevent buses from running in the most congested streets, and also from making the kind of traffic movement, such as right-hand turns, which themselves are the cause of congestion. If buses have to use congested streets, we might be able to give them priority in certain lanes.

The 100,000th Bedford ready to leave the Dunstable factory for an Austrian customer. It is the first time 100,000 Bedfords have been built in one year; last year 88,720 were turned out

BOOK NOTICES

History for Christmas

TALYLLYN RAILWAY CALENDAR (Worcestershire; R. K. Cope, Brynglas, Beckman Road, Pedmore, Stourbridge. Price 2s. 6d.) To many the arrival of the Talyllyn Railway calendar is an annual event not to be missed. They will be pleased with the 1961 edition which contains the usual six photographs of locomotives and trains at work on this remarkable 2 ft. 3 in. gauge railway.

* * *

A HISTORY OF BRADFORD TROLLEYBUSES—1911-1960. By Harold Brearley. (Lingfield, Surrey: Oakwood Press, Tandridge Lane. Price 6s.) As the oldest surviving trolleybus operator, celebrating its jubilee next June, Bradford Corporation deserves this tribute from a member of its mechanical staff. It is full of useful and interesting information, has a map and in it 15 halftone illustrations are printed. It is the sort of local history for which there seems great scope and of which one would like to see more. Besides the story there are rolling stock lists.

* * *

THE BEAUTY OF RAILWAYS. By C. Hamilton Ellis (London: Max Parrish and Co., Limited, 55 Queen Anne Street, W.1. Price 35s.) Ellis is an old hand at picking out the beautiful in the railway scene; this applies not only to the selection of photographs but to the presentation of sketches and paintings. In this handsome work he selects 163 subjects for photogravure plates. They come from all parts of the world; some are made by the scenery, but in most it is a quality of locomotion that produces the attractive scene. In a Cézanne the gash through the countryside made by the line of route is what the artist depicts. In any event the reader is treated to Ellis's views—always worth reading—on likes and dislikes in these matters.

* * *

The SALISBURY AND YEOVIL RAILWAY. By Louis H. Ruegg—reprinted from his book of 1878. (Dawlish: David and Charles (Publishers) Limited, 39 Strand. Price 1s. 6d.) In the centenary year of the Salisbury and Yeovil Railway Company it is a happy thought to reprint this work, first published in 1878, to describe the tempestuous early history and subsequent success of the company. To preserve the original atmosphere a photographic reproduction process has been used, so that the new edition has a mid-Victorian air. David St. John Thomas has written an introduction to give the post-nationalisation reader a clue to the railway's place in the scheme of things and to show that the author was not only a journalist but one deeply concerned with railway promotion. We hope this may be the forerunner of many similar reprints of books only obtainable to the ordinary student of railway history in obscure libraries.

* * *

MORE UNUSUAL RAILWAYS. By J. R. Day. (London: Frederick Muller, Limited, 110 Fleet Street, E.C.4. Price 21s.) Whether inventors have been seeking improvements or merely attempting perversely to turn the orthodox upside down, much thought has been given to specialised types of railway. With Mr. B. G. Wilson the author has already devoted one volume to *Unusual Railways* and it is not a little remarkable that Mr. Day is now able to bring forward notes upon two score more railways with unusual motive power, vehicles or track, the results of a very considerable research project. Most of these are illustrated in photographs and diagrams. The new work will, with its predecessor, take its place on reference shelves everywhere and we venture to guess that it will often be dipped into in these days when monorails and guided hovercraft are matters, it would seem, of popular enthusiasm.

* * *

THE CANALS OF SOUTH WALES AND THE BORDER. By Charles Hadfield. (Cardiff: the University of Wales Press, University Registry, Cathays Park; London: Phœnix House, Limited. Price 30s.) The eagerly awaited second volume of the regional canal histories by Hadfield will be welcomed by students of inland waterways. It follows the author's previous plan, familiar from the *Canals of Southern England*, and extends the story and data to cover South Wales, Monmouthshire, Herefordshire and the Forest of Dean. This is another of those satisfying histories that stands the test of answering one's queries as they are posed, whether one deals with the romantic area between the Severn and the Wye or with the anthracite coalfield west of Llanelly. The importance of the tramroads built in conjunction with the canals is set in its proper perspective. Much of its contents has never been put on record before between one pair of covers and it is a work both erudite and easy to read, well arranged as a work of reference. Maps and photographic illustrations are excellently executed.

FORTHCOMING EVENTS

December 19.—Inst.T. annual general meeting of corporate members. 80 Portland Place, W.1. 5.45 p.m.
Inst.T. (Sussex). Papers by graduates and students. Arlington Hotel, Brighton. 6.30 p.m.
I.Mech.E. Discussion, "Safety on Construction Sites." 1 Birdcage Walk, S.W.1. 6 p.m.

December 20.—Inst.T. (North Western). Gordon Erridge, "Selling a Service." Gas Service Centre, Manchester. 6.15 p.m.
Inst.T. (Scottish). G. M. Macintosh, "Scottish Airports." North British Hotel, Edinburgh. 6 p.m.
Inst.T. (West Middx). D. Hollings, "Organisation and Method Work in Air Transport." Control Tower, London Airport. 6.30 p.m.
Inst.T. (Birmingham and Dis. G. and S.). W. M. Robinson, "Milk Transport Past, Present and Future." Engineering Centre, Stephenson Place, Birmingham. 2. 6.45 p.m.
I.E.E. (Measurement and Control). L. Airey, "Digital Transducers." Savoy Place, W.C.2. 5.30 p.m.
I.Mech.E. (Graduates). Films. 1 Birdcage Walk, S.W.1. 6.30 p.m.

December 21.—Inst.T. (Humberside). J. W. Swann, "The Impact of Modern Aircraft on Passenger Service." Samman House, Bowlalley Lane, Hull. 6 p.m.

December 28.—V. E. Burrows, "London File for 1932." 153 Drummond Street, N.W.1. 7 p.m.

KEY TO CODE

A.D.A.—Aluminium Development Association; A.F.—Aviation Forum; B.I.R.E.—British Institution of Radio Engineers; B.L.S.—Branch Line Society; B.R.E.R.S.R.S.—British Railways Eastern Region Staff Railway Society; D.E.U.A.—Diesel Engineers and Users Association; E.R.S.—Electric Railway Society; H.C.V.C.—Historic Commercial Vehicle Club; H.M.R.S.—Historical Model Railway Society; Inst.C.E.—Institution of Civil Engineers; I.E.E.—Institution of Electrical Engineers; I.N.A.—Institution of Naval Architects; I.R.S.E.—Institution of Railway Signal Engineers; I.R.T.E.—Institute of Road Transport Engineers; I.T.A.—Industrial Transport Association; I.Loco.E.—Institution of Locomotive Engineers; I.Mar.E.—Institute of Marine Engineers; I.Mech.E.—Institution of Mechanical Engineers; I.Nav.—Institute of Navigation; Inst.H.E.—Institution of Highway Engineers; Inst.P.—Institute of Petroleum; Inst.T.—Institute of Transport; Inst.Traf.A.—Institute of Traffic Administration.
L.M.R.L.D.S.—London Midland Region Lecture and Debating Society; L.R.T.L.—Light Railway Transport League; N.E.C.I.E.S.—North East Coast Institution of Engineers and Shipbuilders; N.T.M.R.C.—Norbury Transport and Model Railway Club; O.S.—Omnibus Society; P.R.D.G.—Peterborough Railway Discuss on Group; P.V.O.A.—Passenger Vehicle Operators Association; P.W.I.—Permanent Way Institution; R.Ae.S.—Royal Aeronautical Society; R.C.H.S.—Railway and Canal Historical Society; R.C.T.S.—Railway Correspondence and Travel Society; R.H.A.—Road Haulage Association; R.S.A.—Royal Society of Arts; Rly.C.—Railway Club; Rly.E.C.—Railway Enthusiasts Club; Rly.S.A.—Railway Students Association; S.C.T.S.—Southern Counties Touring Society; S.E.—Society of Engineers; S.L.S.—Stephenson Locomotive Society; S.R.L.D.S.—Southern Region Lecture and Debating Society; S. Wales and Mon. R.D.L.D.S.—South Wales and Mon. Railway and Docks Lecture and Debating Society; T.R.T.A.—Traders Road Transport Association; V.P.V.S.—Vintage Passenger Vehicle Society; W.R.L.L.D.S.—Western Region London Lecture and Debating Society; W.W.R.T.S.—West Warwickshire Railway and Travel Society.

British Geon, Limited (jointly owned by the Distillers Co., Limited, and B. F. Goodrich Chemical Company), is planning yet another expansion of its polyvinyl chloride plant at Barry, South Wales. The £2 million extension at present under construction is scheduled for completion about the middle of next year, after which a major addition to the polymerising capacity may be made.

POLYMETHANE FOAM INSULATION

Pouring and Spraying

ON November 8 and 9, J. W. Roberts, Limited, Horwich, Bolton, demonstrated before senior representatives of British Railways and the principal carriage builders its new equipment for the application of polymethane foam by spraying and pouring. The processes are used for producing the foam in cavities to form continuous lightweight thermal and sound insulation coatings. The demonstrations took place at Horwich locomotive works of the London Midland Region.

The application by spraying was carried out on a British Railways banana van to produce a coating 2 in. thick. The pouring process was applied to an AF-type insulated container, in which a 9-in. thickness of fill was produced. The development of the new polymethane foam equipment is essentially complementary to the company's well-established sprayed Limpet asbestos process, which is already in universal use for the insulation of road and rail vehicles, ships, plant, buildings and structures.

The opportunity was taken of showing the visitors something of the recent research work carried out by J. W. Roberts, Limited, at its new headquarters and research establishment in Horwich, with particular reference to the insulation of moving vehicles and the protection of the body panelling against corrosive attack. The result of recent tests on the insulation of vehicle floors carried out by the National Physical Laboratory were also discussed. The visitors were also shown the mass production of J. W. Roberts Feroglas glass-reinforced plastics at the nearby Hindley Green plant, where components are produced for the railway and other industries by press moulding, using matched metal moulds.

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PETROLEUM CHEMICALS

B.P. Expands Interests

A FURTHER development of British Petroleum Company's interests in the petroleum chemicals fields was made known recently when the British concern and California Chemical Company announced a £7,000,000 joint venture involving the immediate construction of two aromatics manufacturing plants in Europe. The joint undertaking will be known as B.P. California, and British Petroleum will operate the units on its behalf. The units will be located adjacent to existing B.P. refineries at the Isle of Grain, Kent, and Dinslaken, West Germany, and in the initial phases will produce 19,000 tons a year of orthoxylene, 16,000 tons of ethyl benzene and 22,000 tons of paraxylene the basic ingredient used in manufacture of polyester synthetic fibres.

The new B.P. Ruhr Refinery at Dinslaken was officially opened on October 20 by the Federal Minister of Economic Affairs, Professor Ludwig Erhard. Stage I of the refinery is now commissioned. The two crude oil distillation units (each of 50,000 barrels a day capacity) will enable the refinery to deal with a throughput of 4,400,000 tons of crude oil annually. Other Stage I processing units include a catalytic reformer, hydrofiner and copper chloride treatment units and a sulphur recovery plant. Construction of a second stage is in hand, which when completed will add a catalytic cracking unit with associated vacuum unit and a bitumen plant. The refinery is owned and operated by the British Petroleum group's German associate, B.P. Benzin und Petroleum A.G., Hamburg.

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THE CAR AND PUBLIC TRANSPORT

(*Continued from page 6*)

pect of any subsidy or preferential treatment for the railways; almost certainly decisions will be made on economic grounds, recognising that road and rail are complementary, each supreme in its respective field.

A Middle Course

It seems that the basic problems which result from the spread of car ownership are better understood today than even a year or two ago. We hear less from the pessimists who maintain that this country simply cannot sustain such a large car population. The cartoonists have had their fun. The facts have been paraded. The leaders have been written, and now public opinion is slowly beginning to realise that, with good sense and planning, public and private transport can be allies, each carrying out the tasks for which it is best suited.

The Prime Minister has referred to the two extreme views—to destroy the heart of our cities to make way for the motor car, or alternatively, to exclude cars from our cities altogether; he declared firmly that the proper course lay between these two extremes, and his Government has since gone a long way towards sorting out the respective parts private and public transport have to play in the Britain of the future.

As we have seen, we are not alone in having to face these problems. There are many elements of similarity with those which the Americans faced over 30 years ago, and which have long been familiar also in Sydney, Johannesburg and Montreal. However, time is the essence of our problem. There are so many things to be done today, so many arrears to make up.

To summarise and in conclusion, for the railways I foresee a good future with increased and profitable traffic, but within a greatly reduced system. For passenger road services I am afraid that there will be a less promising future. In the country the opportunities for replacement of abandoned rail services will be more than counterbalanced by loss of traffic to cars. In cities, the bus will continue to be of great value for commuting and general traffic. Losses to the motor car will undoubtedly continue, but a sizable part of present traffic will probably be retained.

Arising from a suggestion made by the British Welding Research Association, the Institution of Mechanical Engineers is arranging a symposium entitled "Pressure Vessel Research towards Better Design," which will be held in London at the Institution next January 18 and 19. In recent years a great deal of work has been conducted in this country on problems associated with the design of pressure vessels and considerable design data have accumulated. But design data vary and the subject is one which is ripe for open discussion.

BUS OPERATION IN THE SOUTH MIDLANDS

Development of United Counties

IMPORTANT MEMBER OF TILLING GROUP

OPENING of the well-designed new bus station at Bedford, forming as it does an integral part of the redevelopment of that town west of the High Street, marks a new phase in the development of bus operations from that South Midland manufacturing and distribution centre, by far the largest participant in which is the United Counties Omnibus Co., Limited, an important member of the Tilling Group, operating 23 express and 228 stage services with a fleet of over 450 vehicles; it is owned by the British Transport Commission and is a company of which the origin and progress is of more than passing interest.

At first—40 years ago—serving the Wellingborough and Northampton conurbation, then famous mainly for boot and shoe production, with

A Leyland bus of the New Central company on the Bedford to Clapham service in 1913

the ironstone industry around Corby but a fraction of its present importance, the area of activities was enclosed roughly by a line through Buckingham, Towcester, Daventry, Market Harborough, Oakham, Stamford, Thrapston and St. Neots; later part of the Aylesbury Omnibus Company's territory was transferred, taking activities a little farther south. Less than a decade has passed since one of the logical transfers of territory inside the nationalised Tilling Group transferred to United Counties the Eastern National Midland area, the Bedford portion of which was made over by the London General Omnibus Company in 1919 to the National Steam Car Company (later National Omnibus and Transport Co., Limited). This enlarged United activities to reach Huntingdon, St. Ives, Cambridge, Royston, Buntingford, Baldock, Luton, Wendover and Amersham.

Origins

Nevertheless, although it is only since May 1, 1952, that the United Counties Omnibus Company has had a base in Bedford and only 39 years since it was registered, it is, in fact, to Bedford that the company owed its origin 47 years ago. This seeming paradox arises from the fact that the late Mr. W. B. Richardson, an energetic pioneer of bus operation who was greatly concerned with the horse bus and then with the activities of the London Central Omnibus Co., Limited, had set up a new department of that business in the county town of Bedfordshire in May, 1912. The Bedford undertaking of the New Central Omnibus Co., Limited, as it had become at the beginning of 1912, was eventually taken over by the London General Omnibus Co., Limited, from January 1, 1913. In the spring of 1913, while services from Bedford to neighbouring villages were being developed, one of the crews asked if they might hire a bus for a private party on a Saturday.

They duly did so, but when the Saturday hire became a weekly event they were followed on a motor cycle and it was discovered that they were plying for hire, without licence or let or hindrance from any, in the busy shopping streets of Wellingborough and the neighbourhood. As Benjamin Richardson estimated that something like 2s. a mile was being taken (enormous receipts for 1913) he made haste to register the Wellingborough Motor Omnibus Co., Limited, with a capital of £10,000, on May 3, 1913. A Leyland 34-seater with a body built some years earlier for the Central's Kingsway service and four others dating from 1912 were sent to Northamptonshire to begin business almost at once from a garage in Finedon Road, Irthlingborough.

United Counties Formed

From this rather romantic beginning the company developed a prosperous business; 12 buses were in the fleet at the outbreak of war in 1914 and in 1921, when its bus operations were transferred to the newly formed United Counties Omnibus and Road Transport Co., Limited, 44 vehicles were handed over. The United Counties company, of which Mr. Henry Charles Merrett was chairman, was registered on September 1, and agreed on September 7 to take over certain assets of the Wellingborough company and its routes in a 50-mile radius of Wellingborough; the consideration was £70,000. The takeover day was September 24, 1921. In addition the company was intended to run other bus services in Northamptonshire and to be a common carrier of freight by road. For this reason a garage site of considerable size was arranged at Desborough, but the lorry fleet proposals were not developed and eventually most of the premises were disposed of. Part was used for the company's own bodybuilding activities; about half the original fleet was rebodied by United Counties and two of the Wellingborough chassis survived as garage lorries for 28 years after their purchase. Desborough garage houses only 10 buses today. Nearly a score of other Leyland vehicles was added to the fleet in 1922.

Steady, if slow, growth continued; by 1927 there were 95 buses operating over 136 route-miles and the capital was £150,000. In 1928 the business of the Northampton Motor Omnibus Co., Limited, was purchased during March. This company had been formed by the Grose family as long previously as July, 1914, and it was operating a fleet of 32 Daimler vehicles to such places as West Haddon, Welford, Stony Stratford, Heyford, Weedon and Daventry as well as a large group of market day operations. Until then the company had run into the county town only on two routes—from Kettering and from Irthlingborough via Wellingborough. In the same year the businesses of Summerley Brothers and of Mrs. A. J. York of Irchester were acquired. The business of A. A. Clarke of Weedon was taken over at the end of 1930 together with four buses.

Tilling Purchase

In the spring of 1931 it was rumoured that the London Midland and Scottish Railway was negotiating to purchase the United Counties share capital, with a view to sharing it with Tilling and British Automobile Traction, Limited, under the agreement between the railways and that company, but following close upon the purchase of the National Omnibus and Transport Co., Limited (of which Mr. H. C. Merrett was also a director), by Thomas Tilling, Limited, it was announced on April 22, 1931, that a controlling interest had been acquired in United Counties Omnibus and Road Transport by Thomas Tilling. The financial offer was 38s. 6d. for each £1 ordinary share, 26s. 3d. for each 8 per cent cumulative participating preference share and 23s. for each 7 per cent cumulative preference share. The fleet by this time totalled 151 vehicles, 33 of which were double-deckers. All chassis were Leyland, but there were bodies built by Christopher Dodson, Leyland, Short Brothers and, of course, United Counties itself in its Desborough shops.

A period of more intensive development followed. Four Reos were taken over from Smith of Great Creaton in April, 1931, and two others from Miller of Welford in July. Four G.M.C. and Chevrolet buses came from Clarke of Moulton in November. Then, in January, 1932, the company attempted to enter the long-distance business by means of the Mayfair Transport Co., Limited, of Kilburn, N.W.6, which opened a route from London to Northampton and Leicester on October 1, 1927, quite early in the motor coach service era; the company had been incorporated on April 16 of that year and it operated five 26-seat American-built Brockway coaches. The transfer application to the Traffic Commissioners failed, however, and an appeal was unsuccessful; a receiver was appointed for the Mayfair company, and arranged its sale to Allchin and Sons of Northampton. At this time two services of W. A. Nightingale and Sons of Abington Street, Northampton, were transferred to United Counties —those to Hanslope and Cosgrove—and G. E. Richardson's services from Northampton to Castlethorpe and Wolverton, giving an opportunity for consolidation. The fleet was reinforced by two small buses from J. H. White of Brixworth in February, 1932, and by three Thornycrofts and a Commer Invader when the business of J. C. Abram, Earls Barton, was taken over in May. In July, 1932, another miscellaneous fleet came in with the Phillips business in Long Buckby; it included an A.D.C. The double-deck fleet was strengthened by 12 Leyland Titans in 1931 and 16 in 1932; another 15 came into service in 1933.

The Bedford garage of United Counties was built by the London General Omnibus Company for the fleet taken over from the New Central company in 1913

A Year of Acquisitions

In 1933 the title of the company was simplified to its present form of United Counties Omnibus Co., Limited, from October 3; it adopted a green livery in lieu of blue. Earlier in the year expansion in the Stamford district took place by acquiring the business of F. Story of Tinwell, with five buses which were almost immediately sold out of service. Small businesses taken over included B. W. H. and F. O. M. Davis (of Lavendon, near Olney), Drage Bros. (of Bozeat) and Wright's Bus Services of Irchester (operating Wellingborough to Rush-

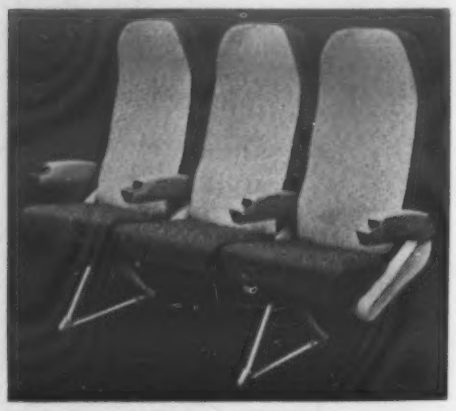
(*Continued on page* 14)

MODERN AIRWAYS and COMMERCIAL AVIATION SECTION

NEW LIGHTWEIGHT SEAT FOR AIRCRAFT

Flyweight 300 Series

RAPID increases in air travel, stimulated by the introduction of economy and thrift fares, have created the demand for lightweight aircraft seats suitable for high-density seating. Aircraft Furnishing, Limited, of London, marks its fourth birthday by the introduction of the Flyweight 300 series passenger seats which fulfil this need. The company was formed four years ago at a time when international airline operators were seeking to introduce cheaper air travel. It decided



A three-unit Universal Flyweight seat

to create a design team and facilities to produce special seats to meet the exacting requirements of airline operators under these conditions. Two prime considerations dictated the design philosophy. First, overall weight of the increased number of seats must not exceed the weight of the original equipment. Second, the highest possible standards of comfort and safety must be maintained.

Lonsdale Series

The first seat—the Lonsdale T34—was designed. Its construction incorporated the foundations of the scheme apparent in the Universal Flyweight. Pitch setting of seats was moved from 39 in. to 34 in. The seat was designed to give ample shin clearance. The seats could be tipped up and the back could be reclined by push-button control; the armrests could be folded up and the back was designed to fold forwards between the armrests upon application of sustained load. On April 1, 1958, B.O.A.C. Britannias went into service equipped with this type of seat. Subsequently this design went into service with B.E.A. Viscount 701 aircraft, and in due course with the B.E.A. Comet fleet.

Subsequent design improvements were made and the folding leg was introduced to meet the special requirements of B.E.A. This allows seats to be folded against the cabin wall when the aircraft is used for freight work. This design, the Lonsdale 200 series, incorporates alloy forgings used for the first time in such equipment for the legs, side, and centre members. This series, in service with the Comet fleets of Aerolineas Argentinas, C.M.A. Mexico, Misrair and Olympic Airways, has earned some £130,000 export orders for the United Kingdom within the past 22 months.

FLYWEIGHT SEAT SCHEMES

	Weight of seats
VISCOUNT "700" SERIES	
48 seats with current equipment	1,330 lb.
48 seats with A.F. Flyweight equipment	960 lb.
Saving	27 per cent
Convert to 60-seater with A.F. Flyweight	1,200 lb.
VISCOUNT "800" SERIES	
60 seats with current overseas equipment	1,740 lb.
60 seats with A.F. Flyweight equipment	1,280 lb.
Saving	27½ per cent
BRITANNIA "300" SERIES	
75 seats with A.F. T.34 (1958) seats	2,175 lb.
75 seats with A.F. Universal Flyweight	1,650 lb.
Saving	24 per cent
128 seats with A.F. Universal Flyweight	2,816 lb.
104 seats with A.F. T.34 (1958) seats	2,816 lb.

Extra 24 seats for no weight increase.

Universal Flyweight

The third seat, the Universal Flyweight, is a natural development of the previous designs and meets the requirements of operators for a suitable tubular seat offering considerable savings in price and weight. The table reproduced illustrates the saving in weight which can be effected in some possible layouts in current aircraft. There is a 45 per cent saving in price on the earlier models.

Universal Flyweight being assembled by Aircraft Furnishing, Limited

The complete absence of obstruction from the top of the seat back through to the front of the seat pan within each frame provides ample shin clearance and allows pitching as close as 28 in. Seat pans tip up to the vertical to permit easier access to seats remote from the gangway. Seat backs can be fixed or reclining, the latter being controlled by a push-button in the armrest fascia. The rack and pawl locking device can be adjusted to limit the angle of recline to the operator's requirements. Recline positions are between 15 deg. and 45 deg. in 7½ deg. stages. The armrests, which fold upright, are foam rubber filled and covered with lightweight Connolly hide as standard; non-fume ashtrays are fitted in the front of the armrests. Seat pans are foam rubber filled and suspended on a strong textile base.

Covers are to customers' choice and are easily removed for cleaning and are interchangeable between seats. Lightweight folding tables are housed in the seat backs with a magazine pocket beneath. Stowage for life belts is provided under each tip-up seat. A triple reclining seat fully dressed as described weighs only 56½ lb.

Construction

Of lightweight tubular construction, the seats are built around a high tensile steel monospar. The legs are adjustable laterally, being bolted to the monospar. This improvement in design means that the same seat can be fitted to a wide variety of current aircraft. For the first time an operator with a mixed fleet can move a long way in terms of standardisation of seats. The Universal Flyweight meets fully the British airworthiness requirements and American Federal Aviation Authority specifications.

With the growing use of jet aircraft special attention has been paid to the stress characteristics in this seat structure. The principle of design, with the single monospar, which is in effect a torque tube, allows energy created to be absorbed in the winding action of the monospar torque tube. One of the seats was tested with an applied load of 10.4 g. The seat tipped forward, bending the rear tension leg, but not breaking it. The Universal Flyweight seat has already been ordered by B.O.A.C. for Britannias on its Skycoach cabotage service.

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FIRST CONVAIR CORONADO

U.S. and Swiss Orders

THE first Convair 990 Coronado was recently finished at Lindbergh Field, San Diego. As is clearly shown in the accompanying illustration, an unusual feature of the design is the two "speed capsules" on each wing, which will enable the aircraft to fly closer to the speed of sound than

A plan view of the Convair Coronado showing speed capsules

any other air liner. Its 640 m.p.h. is 25 m.p.h. faster than the current fastest air liners on the North Atlantic route, the Boeing 720s of Irish International Airlines. Swissair has ordered seven and S.A.S. two for their transatlantic services, and American Airlines has ordered 25 for internal services.

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UNITED COUNTIES

(*Continued from page* 13)

den) while in July the bus services of Bagshaw and Sons, motor transport contractor, Newland Street, Kettering, were incorporated in the U.C.O.C. network, but the six vehicles were quickly disposed of, at least one without being used.

Towards the end of the year, the date of transfer being November 1, the substantial fleet of Allchin and Sons, Kingsthorpe, Northampton, with over 30 buses and coaches, was absorbed. This at last placed United Counties in the position of operating the London to Northampton and Leicester express service upon which it had been attempting to get a footing for some time. At the same time U.C.O.C. now stood a chance of scooping the pool, as on October 1 Allchin's Luxury Coachways had assumed both the Mayfair Transport service on the route and the Midland Motorways Express Service of W. A. Nightingale and Sons, a firm formed in 1921 which had been running an express service to London from the autumn of 1927. From 1929 it had operated three times daily, but the Traffic Commissioners cut it back to two journeys only. The vehicles transferred to U.C.O.C. were mainly recent; only two of the Mayfair Brockway coaches were taken into the United Counties fleet. The Allchin business also reached the South Coast, serving resorts as far west as Torquay, and connected with Nottingham, Derby, Peterborough and Birmingham.

Aylesbury Area

The formation of the London Passenger Transport Board had brought to an end the independent activities of the Aylesbury Omnibus Co., Limited, as part of the group organised by the Premier Omnibus Co., Limited, which included Premier Line, Limited, the largest independent express coach service in the London area. The Aylesbury Omnibus Co., Limited, had been formed in 1931 and acquired the Aylesbury Motor Bus Company routes founded by Mr. E. W. Young from 1920 onwards, and had been running with 18 Leyland Tiger coaches, three 48-seat Dennis open-top double-deckers and two Chevrolet 14-seat buses as "Aylesbury Line" from a garage in the works built for the unsuccessful Cubitt car. It was decided by the major operators to whom Aylesbury was a boundary town to take over the routes in their respective territories, so that London Transport, Thames Valley, City of Oxford and Eastern National each had a section and the transfer of the remaining interests of the Aylesbury Omnibus Co., Limited, outside the L.P.T.B. area was made to Eastern National Omnibus Co., Limited, on May 11, 1933. In the Tilling Group, however, it was seen as logical to extend U.C.O.C. activities south of Buckingham into Aylesbury and a transfer of E.N. routes was therefore also made on December 1, 1933, the new accretion to the United Counties territory being bounded by a line through Wolverton, Fenny Stratford, Leighton Buzzard, Wing, Aylesbury, Winslow, Buckingham and Stony Stratford. Of the 11 vehicles translated to the U.C.O.C. fleet, four came from Aylesbury Line. A Northampton—Buckingham—Aylesbury through service was initiated by U.C.O.C. on February 19, 1934.

(*To be continued*)

SOCIAL AND PERSONAL

President of Locomotive Engineers

AT the general meeting of the Institution of Locomotive Engineers on January 17, 1961, Mr. J. F. Harrison will be proposed as president for the session 1961-62, commencing June 1, 1961. Nominated as new vice-presidents are Messrs. G. Collingwood and S. B. Warder and as members of council Messrs. H. H. C. Barton, M. G. Burrows, A. H. Emerson, T. C. B. Miller, W. L. Topham, E. D. Trask and F. Whyman.

* * *

The annual general meeting of the Institute of Transport will take place on December 19 at 80 Portland Place, W.1, at 5.45 p.m.

* * *

We record with regret the death of Mr. R. H. Murphy, formerly Northern Ireland manager of British European Airways. He was 75.

* * *

The Sheffield section of the Permanent Way Institution will hold a lantern lecture, "Unknown Railways," at the Royal Victoria Hotel, Sheffield, at 6.45 p.m. on February 14 next by Mr. Ronald Shephard.

* * *

Mr. W. E. Grainger, assistant divisional traffic manager, Barrow, London Midland Region, B.R., since 1957, has been appointed divisional traffic manager. He succeeds Mr. H. A. Mugliston, recently made divisional traffic manager, Liverpool. Mr. Grainger began his railway career with the former L.M.S. Northern Counties Committee as an apprentice at Belfast in 1933. He gained experience at Wakefield motive power depot, at divisional offices at Manchester and Crewe, and at headquarters at Euston. Between 1941 and 1945 he was running shed foreman. Appointed mechanical inspector at Glasgow in 1947, he became a member of the motive power staff commission for the Scottish Region in 1948. After serving as locomotive shedmaster at Motherwell and Kings Cross he was appointed in 1954, junior assistant in the motive power superintendent's office at Euston. A year later he became assistant motive power superintendent at Edge Hill and was appointed district motive power superintendent, Springs Branch, Wigan, in 1956. He went to Barrow from Springs Branch on appointment as assistant divisional traffic manager in late 1957. As divisional traffic manager, Barrow, he will be responsible for the Northern Division extending from the Scottish Border to Burton and Holme, and including all Furness, Cumberland and Westmorland and the former Midland Railway lines from Settle to Carlisle.

Mr. W. E. Grainger

The late Mr. J. J. Finlayson

* * *

Major-General E. H. Clayton, C.B., C.B.E., a director and general manager of B.M.C. Service, Limited, has been appointed to the board of Morris Motors, Limited. From 1955 General Clayton has been a local director of Morris Motors. Mr. Peter N. Davies, manager of the B.M.C. parts division, has been appointed a director of B.M.C. Services.

Mr. P. A. Medcraft has been appointed general manager of the B.P. Tanker Co., Limited. He succeeds Mr. D. G. L. Bean, who has been appointed general manager of the supply and development department of the parent B.P. company.

* * *

The Tilling group of omnibus companies announces the following appointments:

Mr. D. S. Deacon, traffic manager, United Automobile Services, Limited, to be assistant general manager also.

Mr. J. P. Kennedy, assistant engineer, Lincolnshire Road Car Co., Limited, to be chief engineer, Cumberland Motor Services, Limited.

Mr. J. A. Talbot, assistant traffic manager, Brighton Hove and District Omnibus Co., Limited, to be traffic manager.

* * *

Ninety-two members of the staff of the Birmingham and Midland Motor Omnibus Co., Limited, a record annual total, received awards for long service in a ceremony at the Queens Hotel, Birmingham. There was one award for 50 years' service (a Dudley conductor), 43 for 40 years and 48 for 25 years. The presentations were made by Mr. J. Spencer Wills, chairman of the company.

* * *

As briefly recorded in our last issue, the death has occurred of Mr. J. J. Finlayson, chief mechanical and electrical engineer, Scottish Region, B.R., since December, 1959. Mr. Finlayson was educated at Allen Glen's School and the Royal Technical College, Glasgow. Following an apprenticeship from 1918 to 1923 with the North British Locomotive Co., Limited, he entered the service of the London and North Eastern Railway in the chief mechanical engineer's department at Cowlairs works. After a period in the drawing office he held various appointments and in 1934 became assistant to the works manager (plant and road motors). Three years later Mr. Finlayson was appointed assistant to the worl... manager (carriage and wagons) and in 1942 became assistant to the works manager (locomotives), Cowlairs. Three years later he was acting assistant district locomotive running superintendent, Western district, Scotland, returning to Cowlairs the following year as assistant works manager. In 1947 he was appointed locomotive works manager at Gorton, and works manager (locomotives, outdoor machinery and electrical), Swindon, in January, 1952. Mr. Finlayson was appointed assistant mechanical and electrical engineer, London Midland Region, in 1956.

* * *

A brave public relations gesture pioneered this year by the North Eastern Region of British Railways has been applauded by audiences of up to 1,000, and by newspapers whose readers number hundreds of thousands more. In Huddersfield, Bradford, and, more recently, in Leeds, the North Eastern Region has held open forum meetings to "tell the people" about railway modernisation plans, particularly in so far as they affect the local public, and answer on-the-spot questions and criticisms. The meetings are judged to have been most successful. Questions were answered by the traffic manager or district officers.

The Lord Mayor and Lady Mayoress of Birmingham received at the Midland "Red" annual ball. In the group are, left to right: Messrs. J. Spencer Wills, chairman of B.M.M.O., D. M. Sinclair, general manager, Mrs. Wills, Mrs. Hunt, Mrs. Sinclair, Alderman B. H. Hunt, Sutton Coldfield, and the Lord Mayor and Lady Mayoress, Alderman and Mrs. G. B. Boughton

Mr. F. A. Mason, M.C., B.Sc., M.I.Mech.E., M.Inst.T., chief engineer of the Western Welsh Omnibus Co., Limited, has been appointed assistant general manager of the company. He will continue as chief engineer.

* * *

Sir Percy Hunting, chairman of the Hunting group of shipping, oil, aviation, survey and engineering companies, is retiring at the end of the year. He will be succeeded by his brother, Mr. G. L. Hunting, the present vice-chairman. Mr. P. Hunting will become vice-chairman.

* * *

Mr. H. Armstrong, A.C.A., assistant accountant with the Northern General Transport Co., Limited, has been appointed to succeed Mr. G. F. Harvey, A.C.I.S., A.A.C.C.A., as secretary and accountant of the City of Oxford Motor Services, Limited. Mr. Armstrong will take up his new duties on a date to be agreed, with a view to his assuming the appointment of secretary of the company on March 1, 1961. As already announced, Mr. Harvey is leaving the City of Oxford company to take up an appointment as secretary and accountant of the Trent Motor Traction Co., Limited.

The 25th annual dinner of the Transport Golfing Society (London area) was held on December 8 with Councillor Norman Harris, the president, in the chair and supported by 633 members and friends. Lord Dunboyn proposed "The Transport Golfing Society" and Mr. Norman Harris replied; both spoke in typically witty vein. "The Guests" was proposed by Mr. J. W. Wicks, the junior vice-president of the Society, and the response was by Mr. Stephen J. McAdden, C.B.E., M.P. The health of "The Chairman" was entrusted to the senior vice-president, Mr. K. Goring-Pelton. The president's prize for the best score during the year was presented to Messrs. R. A. Bargate and E. H. Rundle, while the prize for the best individual performance over three meetings (without winning a spoon) went to Mr. P. A. C. Howlett. The company was entertained by Mr. Tommy Trinder, while music during the evening was provided by the orchestra of the Irish Guards; fanfares were specially composed for the occasion by the Director of Music, Major C. H. Jaegar. During the year, the Society has played on the courses of the St. Georges, Walton Heath, Berkshire, Wentworth, Royal Mid Surrey, and Royal Wimbledon Golf Clubs.

CLASSIFIED ADVERTISEMENTS

CLASSIFIED ADVERTISEMENTS should be addressed to THE MANAGER, Classified Advertisements, MODERN TRANSPORT, Russell Court, 3-16 Woburn Place, London, W.C.1.

ACCEPTANCE.—Advertisements can be accepted up to 2.30 p.m. on Monday to ensure insertion in the current week's issue. MODERN TRANSPORT is on sale every Friday.

SITUATIONS VACANT

FOREIGN EMPLOYMENT

ROADMASTER

ENGINEERING graduate preferred; minimum of two years' engineering training essential.

Require two years' varied railroad engineering service, or five years in direct charge of track crews. Will supervise 135 men maintaining 45-mile railroad, assign work, order materials, be responsible for safety, make regular detailed inspections of roadbed and all track on main line, sidings and yards, bridges, tunnels, etc. Will make engineering calculations relating to maintenance and use of structure and equipment. Must speak Spanish. Married or single candidates acceptable.

Excellent opportunity large copper company, Chile, South America. Two-year contract with transportation both ways for you and family. Base salary $525.00 to $650.00 per month depending upon age and experience of applicant. Box No. 3846, MODERN TRANSPORT, 3-16 Woburn Place, W.C.1.

TRANSPORT MANAGER. An expanding S.E. Essex Company requires an experienced Transport Manager. Candidates in the 25-35 age group should have had considerable experience in this field including Shipping procedure (import and export). Ability to work on own initiative, handle staff and co-operate with others is essential. Post, which is a new one, is permanent and progressive. Commencing salary £800 to £900 per annum according to age and experience. Details to Personnel Manager, Box 3847, MODERN TRANSPORT, 3-16 Woburn Place, London, W.C.1.

CANADIAN MOTORWAYS LIMITED

Appointment of President

CANADIAN MOTORWAYS LIMITED, a trucking and moving business with annual revenues of some $25 million, requires a top executive as President and General Manager, to operate from the Company's head office at Toronto. Applicant must be a proved man of outstanding ability, and the salary will be of the order of the equivalent of £10,000 per annum. Replies to this advertisement (which is being made internationally) will be treated in the strictest confidence, and should be addressed to the Chairman of the Company, Mr. T. Robert Williams, Stratton House, Piccadilly, London, W.1.

IMPORTANT CONTRACTS

North Cheshire Motorway

THERE is a possibility of a major contract being awarded for construction of the Birmingham to Preston Motorway (M6). The Cheshire County Council has invited tenders for the 13-mile road to be commenced in the coming spring. The motorway will have two 36-ft. three-lane carriageways and involves the construction of 36 bridges. The period will be 27 months and is being phased to fit in with the progress of adjoining sections of the motorway in Lancashire and South Cheshire.

Demolition Contract

F. Hardwick, Limited, Leeds, 12, has been awarded a contract for demolition of the roofs and buildings at Holbeck High Level Station and the up platform at Holbeck Low Level Station.

British Railways Orders Control Equipment

Ericsson Telephones, Limited, has been awarded a Western Region contract for provision and installation of telephone train control equipment at Gloucester and Shrewsbury.

Bedford Milestone

The 100,000th Bedford built this year left the Dunstable factory last week. As will be seen from the illustration on page 11, it is a five-ton lorry. It is destined for Austria. The total production last year was 88,720.

Mysore Purchases Leylands

Mysore Government Road Transport has placed a repeat order for 20 Comet bus chassis with Ashok Leyland, Limited, of Madras. Mysore has now ordered over 200 Comets since the State nationalisation of passenger transport.

Eastern Region Bridge Reconstruction

Reconstruction of footbridges at Holmes Station, Shirebrook (North) Station, and between Killamargh West and Woodhouse Mill on the Eastern Region will be carried out by Cleveland Bridge and Engineering Co., Limited.

Toronto Signalling Contract

The Toronto Transit Commission has awarded the contract for the signalling of the University section of the Bloor—Danforth—University Subway to the General Railway Signal Company of Canada. The contract is worth $978,750.

Wellington Buys A.E.C.

Wellington City Corporation Transport Department has placed an order for 44 A.E.C. Reliance vehicles. This is a repeat order, for 67 Reliances are already in operation. The new buses will be placed in service as the final phase of a tram conversion scheme aimed at improving the passenger facilities while reducing operating costs.

New Eastern Region Contracts

The Eastern Region of British Railways announces the following contracts:

Thomas Fletcher and Co., Limited, Mansfield, for reconstruction of bridge between Sedgebrook and Barkston Junction.

The Duramin Engineering Co., Limited, Ruislip, for six bulk flour containers.

Standard Telephones and Cables, Limited, London, E.16, for plain and corrugated sheathed telecommunications cables between Chelmsford and Colchester.

The Brightside Heating and Engineering Co., Limited, Sheffield, 9, for boiler plant, heating systems, oil storage equipment, piping, etc., in the technical stores, Doncaster.

Marconi Fits Out Weather Ships

Marconi's Wireless Telegraph Co., Limited, is engaged on an extensive Air Ministry contract which involves the planning, supply and installation of new radio communication equipment and automatic direction finders, and the modernising and installation of Admiralty ranging and height-finding radar for high-altitude windfinding aboard two new ocean weather ships. The first, O.W.S. *Weather Adviser*, has been completed and has run her acceptance trials. She was formerly the frigate H.M.S. *Amberley Castle* before extensive conversion refit at the Blyth yard of the Blyth Dry Docks and Shipbuilding Company. The second frigate, H.M.S. *Pevensey Castle*, is undergoing a similar refit at the same yard prior to similar Marconi installation.

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ALUMINIUM IN VEHICLES

DESPITE its sponsorship by Reynolds Metal Company (joined with Tube Investments in the control of British Aluminium Company), a one-hour film entitled *The 43rd Motor Show in Detroit* is presented without out-of-context promotional references to aluminium. Rightly, the film does draw attention to the extent to which other materials are being replaced by American vehicle manufacturers by aluminium and aluminium alloys, for example in engine cylinder blocks and interior and exterior bright-trim parts, and emphasises the advantages of aluminium for these purposes. It comes as a surprise to learn that all the major U.S. producers now have aluminium blocks and heads in one or more engines.

The film covers the major design features of the 1961 ranges of all U.S. car manufacturers and includes shots and comments from the commercial vehicle and components sections of the exhibition.

SHIPPING and SHIPBUILDING

Tourist Class in U.S. Liner

WHEN the 34,000 gross tons liner *America* sailed last weekend from New York for Europe she carried only two classes of passengers in place of the three she has carried in the past. The intermediate cabin class has been abolished and the ship now offers only first and tourist class accommodation. The cabin class accommodation has been reallocated with the result that considerably more space is offered to the tourist class, including the previous cabin class public room, state rooms and deck space. Over 80 per cent of tourist accommodation will now have private shower and toilet facilities. The new arrangement, which has not involved any structural alterations, will give the *America* a normal tourist capacity of 530 persons instead of the previous accommodation for 159 people.

U.S. Lines Agreement

TWO U.S. owners, American Export Lines and the Isbrandtsen company, have announced that they have filed with the U.S. Federal Maritime Board an agreement providing for the acquisition by American Export of a subsidiary of Isbrandtsen that would own and operate certain common carrier services now operated by Isbrandtsen. The services comprise an eastbound round-the-world service which operates fortnightly sailings with 10 vessels, including calls at Mediterranean, Red Sea, Pakistani, Indian, Indonesian, Hong Kong, Formosan and Japanese ports, and a service with four additional ships to the United Kingdom and Northern Europe, including sailings during the open season via the St. Lawrence Seaway from the Great Lakes. Government subsidies will be sought for these services. In October, the Isbrandtsen company acquired a 25 per cent stock interest, considered a controlling interest, in American Export Lines through purchase of some 310,000 shares from Mrs. Josephine Bay Paul and Mr. C. Michael Paul for approximately $7,500,000.

Rubber Skins for Ships

FROM his observations of the behaviour of porpoises and the structure of their skins, a former German scientist, now in the United States of America, Dr. Max. O. Kramer, has invented a new form of rubber coating for ships which he claims will allow them to travel faster without any increase in power, or at the same speed with less power than is now required. The principle is described in the current edition of *Rubber Developments*, published by the Natural Rubber Bureau.

Normally an object as it moves through the water consumes some 70 to 90 per cent of its propulsive energy to overcome the drag due to turbulence created by itself. The application of the coating will, it is claimed, reduce turbulence by some 50 per cent in completely submerged bodies. The coating is in the form of a thin layer of rubber supported on the inside by millions of tiny rubber pillars. Between these pillars interconnecting channels contain a freely-flowing viscous liquid. The outside of the coating is smooth but the channels give it flexibility and the liquid provides the necessary damping to potential turbulence.

Experiments have already been carried out on the hulls of motor boats. A retired American naval submarine expert has been quoted as saying that a submarine speed of 60 knots (about 70 m.p.h.) would be possible with the development of a successful submarine skin.

★

FINANCIAL RESULTS

NOTES on the trading results, dividends and financial provisions of companies associated with the transport industry are contained in this feature, together with details of share issues, acquisitions and company formations or reorganisations

Lisbon Electric Tramways

Lisbon Electric Tramways, Limited, is paying an interim dividend of 2 per cent for the year ending December 31, 1960.

East Kent Road Car

Net profit of the East Kent Road Car Co., Limited, for the year ended September 3, was £132,315 (£136,082). General reserve receives £50,000 (same), dividend is 8¼ per cent (same). Traffic receipts were £2,151,751 (£2,087,672).

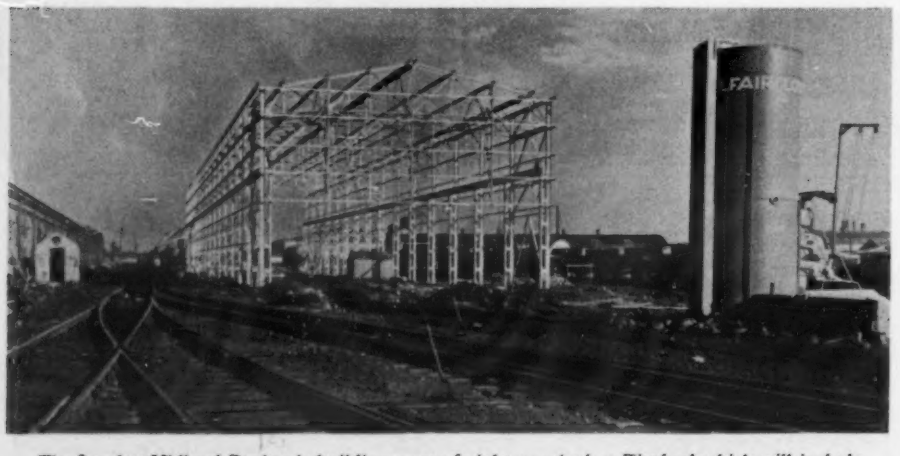
Seddon Diesel Vehicles

Seddon Diesel Vehicles, Limited, reports a group profit before tax, for the year ended June 30, 1960, of £100,115 (£54,989) and dividend 15 per cent (5 per cent). The order book has improved considerably, and it is continuing to do so. Provided there is no major upset in trade, group earnings should once again show a steady increase in current year.

Townsend Ferries and Shipping

The group profit of Townsend Ferries and Shipping, Limited, before tax, for the 13 months ended April 30, 1960, was £83,466 (£113,507 year) and the dividend 12½ per cent (10 per cent). The car ferry business was sold during the period and part of large capital surplus used to write down to nominal value expenditure on provision of facilities for commercial ferry service.

A new wholly owned subsidiary of the Chaseside Motor Co., Limited, named Dial-Mec, Limited, carries on the traditions in the earth moving and kindred fields established by its predecessor, Chaseside Engineering Co., Limited. Dial-Mec operates from a new sales and service centre at Caxton Hill, Hertford, with the Herts, Bucks, Beds and East Middlesex distributorship for Whitlock Bros., Limited.



The London Midland Region is building a new freight terminal at Watford which will include a 475-ft. slat conveyor and with 58-ft. overhead gantry crane with two sheds for received and sundries traffic

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